



**TOWN OF DISCOVERY BAY
COMMUNITY SERVICES DISTRICT**

RESOLUTION 2017-11

**A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE TOWN OF DISCOVERY BAY,
A CALIFORNIA COMMUNITY SERVICES DISTRICT,
CERTIFYING THE 2015 URBAN WATER MANAGEMENT PLAN**

WHEREAS, the Town of Discovery Bay Community Services District is a public agency in the state of California; and

WHEREAS, Pursuant to the Water Conservation Bill of 2009 SBX7-7 each urban water supplier that provides over 3,000 acre-feet of water annually, or serves more than 3,000 urban connections is required to assess the reliability of its water sources over the 20-year planning horizon; and

WHEREAS, the Town of Discovery Bay produces 3,000 acre-feet of water annually, and serves more than 3,000 urban connections and is therefore subject to the Bill; and

WHEREAS, the California Department of Water Resources ("DWR") requires an Urban Water Management Plan ("UWMP") every 5 years; and

WHEREAS, the 2010 UWMP was completed; and

WHEREAS, the engineering firm of Luhdorff and Scalmanini Consulting Engineers ("LSCE") has completed a draft 2015 UWMP to be consistent with DWR requirements and those requirements identified in the Water Code, Sections §10608– 10656; and

WHEREAS, Contra Costa County was notified by letter dated April 7, 2017, that a public hearing to adopt the draft 2015 UWMP will be held at least 60 days from the date of the letter; and

WHEREAS, a Notice of Public Hearing to adopt the draft 2015 UWMP on June 21, 2017 was published in the East County Times on June 6, 2017 and June 13, 2017, and that the draft 2015 UWMP was available for public inspection and review online and at the Town of Discovery Bay's main office; and

WHEREAS, no written comments concerning the draft 2015 UWMP were received by the Town of Discovery Bay; and

WHEREAS, on June 21, 2017 the Board of Directors of the Town of Discovery Bay conducted a regular meeting to receive and consider public comments on the 2015 UWMP, and no substantial changes were made as a result of the public discussion;

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE TOWN OF DISCOVERY BAY COMMUNITY SERVICES DISTRICT DOES HEREBY RESOLVE AS FOLLOWS:


- SECTION 1. That the Board of Directors of the Town of Discovery Bay adopts the 2015 UWMP as drafted by LSCE.
- SECTION 2. That the 2015 UWMP is made a part of this Resolution.
- SECTION 3. The Board Secretary shall certify the adoption of this Resolution.

PASSED, APPROVED AND ADOPTED THIS 21st DAY OF JUNE, 2017


Robert Leete
Board President

I hereby certify that the foregoing Resolution was duly adopted by the Board of Directors of the Town of Discovery Bay Community Services District at a regularly scheduled meeting, held on June 21, 2017 by the following vote of the Board:

AYES: 3 - President Leete, Vice-President Akves, Director Mayer
NOES: 0
ABSENT: 2 - Director Pease, Director Steele
ABSTAIN: 0


Michael R. Davies
Board Secretary

2015 URBAN WATER MANAGEMENT PLAN

Town of Discovery Bay Community Services District



*Prepared with Assistance From
Luhdorff & Scalmanini Consulting Engineers*

May 2017

Adopted June 21, 2017

This page intentionally left blank.

Table of Contents

List of Tables.....	v
List of Figures	vi
Appendices	vii
List of Abbreviations.....	viii
1 Chapter 1 - Introduction and Overview.....	1-1
1.1 Background and Purpose.....	1-1
1.2 Urban Water Management Planning and the California Water Code	1-1
1.3 Urban Water Management Plans in Relation to Other Efforts.....	1-2
1.4 UWMP Organization.....	1-2
2 Chapter 2 - Plan Preparation	2-1
2.1 Basis for Preparing a Plan	2-1
2.2 Regional Planning	2-1
2.3 Individual or Regional Planning and Compliance	2-1
2.4 Fiscal or Calendar Year and Units of Measure	2-2
2.5 Coordination and Outreach	2-2
3 Chapter 3 - System Description.....	3-1
3.1 General Description.....	3-1
3.2 Service Area Boundary Maps	3-1
3.2.1 Potable Water Service Area	3-2
3.2.2 Water Supply Wells	3-2
3.2.3 Water Treatment Plants and Storage.....	3-2
3.2.4 Water Distribution System.....	3-3
3.2.5 Service Area Changes	3-3
3.3 Service Area Climate	3-3
3.4 Service Area Population and Demographics.....	3-4
4 Chapter 4 - System Water Use	4-1

4.1	Recycled versus Potable and Raw Water Demand	4-1
4.2	Water Uses by Sector	4-1
4.3	Distribution System Water Losses	4-3
4.4	Estimating Future Water Savings.....	4-3
4.5	Water Use for Lower Income Households	4-4
4.6	Climate Change	4-4
5	Chapter 5 - SB X7-7 Baselines and Targets	5-5
5.1	Guidance for Wholesale Agencies	5-5
5.2	Updating Calculations from 2010 UWMP.....	5-5
5.3	Baseline Periods	5-5
5.4	Service Area Population.....	5-5
5.5	Gross Water Use.....	5-7
5.6	Baseline Daily Per Capita Water Use	5-7
5.7	2015 and 2020 Targets	5-8
5.8	2015 Compliance Daily per Capita Water Use (GPCD).....	5-9
5.9	Regional Alliance.....	5-10
6	Chapter 6 - System Supplies	6-1
6.1	Purchased or Imported Water.....	6-1
6.2	Groundwater.....	6-1
6.2.1	Basin Description.....	6-1
6.2.2	Groundwater Management.....	6-4
6.2.3	Overdraft Conditions	6-5
6.2.4	Historical Groundwater Pumping	6-5
6.3	Surface Water	6-6
6.4	Stormwater	6-6
6.5	Wastewater and Recycled Water.....	6-6
6.5.1	Recycled Water Coordination.....	6-6
6.5.2	Wastewater Collection, Treatment, and Disposal.....	6-7
6.5.3	Recycled Water System	6-8
6.5.4	Recycled Water Beneficial Uses.....	6-9
6.5.5	Actions to Encourage and Optimize Future Recycled Water Use	6-12
6.6	Desalinated Water Opportunities	6-13

6.7	Exchanges or Transfers	6-13
6.8	Future Water Projects.....	6-13
6.9	Summary of Existing and Planned Sources of Water	6-14
6.10	Climate Change Impacts to Supply	6-14
7	Chapter 7 - Water Supply Reliability Assessment	7-1
7.1	Constraints on Water Sources	7-1
7.2	Reliability by Type of Year.....	7-1
7.3	Supply and Demand Assessment	7-2
7.4	Regional Supply Reliability	7-4
8	Chapter 8 - Water Shortage Contingency Planning	8-1
8.1	Stages of Action	8-1
8.2	Prohibitions on End Uses	8-2
8.3	Penalties, Charges, Other Enforcement of Prohibitions.....	8-3
8.4	Consumption Reduction Methods.....	8-3
8.5	Determining Water Shortage Reductions.....	8-4
8.6	Revenue and Expenditure Impacts.....	8-5
8.7	Resolution or Ordinance.....	8-5
8.8	Catastrophic Supply Interruption	8-5
8.9	Minimum Supply Next Three Years	8-5
9	Chapter 9 - Demand Management Measures	9-1
9.1	Demand Management Measures for Retail Agencies	9-1
9.1.1	Water Waste Prevention Ordinances	9-1
9.1.2	Metering.....	9-1
9.1.3	Conservation Pricing.....	9-2
9.1.4	Public Education and Outreach.....	9-2
9.1.5	Programs to Assess and Manage Distribution System Real Loss.....	9-3
9.1.6	Water Conservation Program Coordination and Staffing Support	9-3
9.1.7	Other Demand Management Measures.....	9-3
9.2	Implementation over the Past Five Years	9-3
9.2.1	Water Waste Prevention Ordinances	9-3
9.2.2	Metering.....	9-3

9.2.3	Conservation Pricing.....	9-3
9.2.4	Public Education and Outreach.....	9-4
9.2.5	Programs to Assess and Manage Distribution System Real Loss.....	9-4
9.2.6	Water Conservation Program Coordination and Staffing Support	9-4
9.2.7	Other Demand Management Measures.....	9-4
9.3	Planned Implementation to Achieve Water Use Targets	9-4
9.3.1	Water Waste Prevention Ordinances	9-4
9.3.2	Metering.....	9-4
9.3.3	Conservation Pricing.....	9-4
9.3.4	Public Education and Outreach.....	9-5
9.3.5	Programs to Assess and Manage Distribution System Real Loss.....	9-5
9.3.6	Water Conservation Program Coordination and Staffing Support	9-5
9.3.7	Other Demand Management Measures.....	9-5

10 Chapter 10 - Plan Adoption, Submittal, and Implementation 10-1

10.1	Inclusion of All 2015 Data.....	10-1
10.2	Notice of Public Hearing.....	10-1
10.3	Public Hearing and Adoption.....	10-1
10.4	Plan Submittal	10-2
10.4.1	Submitting a UWMP to DWR	10-2
10.4.2	Electronic Data Submittal	10-2
10.4.3	Submitting a UWMP to the California State Library	10-2
10.4.4	Submitting a UWMP to Cities and Counties	10-2
10.5	Public Availability.....	10-2
10.6	Amending an Adopted UWMP	10-3

11 Limitations..... 11-1

List of Tables

TABLE 2-1. RETAIL: PUBLIC WATER SYSTEMS.....	2-1
TABLE 2-2. PLAN IDENTIFICATION	2-1
TABLE 2-3. AGENCY IDENTIFICATION	2-2
TABLE 2-4. RETAIL: WATER SUPPLIER INFORMATION EXCHANGE.....	2-2
TABLE 2-5. COORDINATION WITH APPROPRIATE AGENCIES FOR PLAN PREPARATION	2-3
TABLE 3-1. RETAIL: POPULATION – CURRENT AND PROJECTED.....	3-5
TABLE 4-1. RETAIL: DEMANDS FOR POTABLE AND RAW WATER – ACTUAL.....	4-2
TABLE 4-2. RETAIL: DEMANDS FOR POTABLE AND RAW WATER – PROJECTED	4-2
TABLE 4-3. RETAIL: TOTAL WATER DEMANDS.....	4-3
TABLE 4-4. RETAIL: 12 MONTH WATER LOSS AUDIT REPORTING	4-3
TABLE 4-5. RETAIL: INCLUSION IN WATER USE PROJECTIONS.....	4-4
SB X7-7 TABLE 5. GALLONS PER CAPITA PER DAY (GPCD)	5-8
TABLE 5-1. BASELINES AND TARGET SUMMARY.....	5-9
TABLE 5-2. 2015 COMPLIANCE	5-10
TABLE 6-2. WATER SUPPLIES – CURRENT AND PROJECTED	6-5
TABLE 6-2. GROUNDWATER SUPPLY WELL INFORMATION	6-6
TABLE 6-3. (DWR TABLE 6-2) WASTEWATER COLLECTED WITHIN SERVICE AREA IN 2015.....	6-8
TABLE 6-4. (DWR TABLE 6-3) WASTEWATER TREATMENT AND DISCHARGE WITHIN SERVICE AREA IN 2015.....	6-8
TABLE 6-5. (DWR TABLE 6-4) CURRENT AND PROJECTED RECYCLED WATER DIRECT BENEFICIAL USES WITHIN SERVICE AREA.....	6-11
TABLE 6-6. (DWR TABLE 6-5) 2010 UWMP RECYCLED WATER USE PROJECTION COMPARED TO 2015 ACTUAL .	6-12
TABLE 6-7. (DWR TABLE 6-6) METHODS TO EXPAND FUTURE RECYCLED WATER USE	6-13
TABLE 6-8. (DWR TABLE 6-7) EXPECTED FUTURE WATER SUPPLY PROJECTS OR PROGRAMS.....	6-13
TABLE 6-9. (DWR TABLE 6-8) WATER SUPPLIES – ACTUAL	6-14
TABLE 6-10. (DWR TABLE 6-9) WATER SUPPLIES – PROJECTED.....	6-14
TABLE 7-1. RETAIL: BASIS OF WATER YEAR DATA	7-2
TABLE 7-2. RETAIL: NORMAL YEAR SUPPLY AND DEMAND COMPARISON	7-3
TABLE 7-3. RETAIL: SINGLE DRY YEAR SUPPLY AND DEMAND COMPARISON.....	7-3
TABLE 7-4. RETAIL: MULTIPLE DRY YEAR SUPPLY AND DEMAND COMPARISON	7-3
TABLE 8-1. RETAIL: STAGES OF WATER STORAGE CONTINGENCY PLAN	8-2
TABLE 8-2. RETAIL: RESTRICTIONS AND PROHIBITIONS ON END USES	8-3
TABLE 8-3. RETAIL: STAGES OF WATER SHORTAGE CONTINGENCY PLAN – CONSUMPTION REDUCTION METHODS .	8-4
TABLE 8-4. RETAIL: THREE-YEAR MINIMUM WATER SUPPLY	8-6
TABLE 10-1. RETAIL: NOTIFICATION TO CITIES AND COUNTIES.....	10-1

List of Figures

FIGURE 3-1 EXISTING WATER SYSTEM AND FUTURE DEVELOPMENTS

FIGURE 6-1 GEOLOGIC CROSS SECTION

FIGURE 6-2 STATIC WATER LEVELS, PRODUCTION, AND DROUGHT PERIODS

FIGURE 6-3 WATER QUALITY (TDS) FOR DBCSD SUPPLY WELLS

Appendices

A	2015 UWMP Checklist
B	DWR Standardized UWMP Data Tables
C	Public Involvement Materials
C - 1	Notices of UWMP Preparation
C - 2	Notice of Public Hearing
C - 3	Public Hearing Minutes
D	2015 UWMP Adoption Resolution
E	AWWA Free Water Audit Software Data Worksheets
F	TODB's Water Conservation Ordinances and Resolutions
F - 1	Water Shortage Contingency Resolution
F - 2	TODB Voluntary Water Reduction Resolution (2014-11)
F - 3	TODB's Emergency Drought Regulations (2015-25)
F - 4	TODB Drought Regulation Ordinance (2016-27)
G	SB X7-7 Tables
H	June 20, 2016, Supporting Analysis on Groundwater Conditions 2016 Self-Certified Water Conservation Standard, Luhdorff & Scalmanini Consulting Engineers

List of Abbreviations

ac-ft	Acre-Feet
CASGEM	California Statewide Groundwater Elevation Monitoring
CIP	Capital Improvement Plan
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
CDP	Census Designated Place
CSD	Community Services District
DMM	Demand Management Measure
DWR	Department of Water Resources
EDU	Equivalent Dwelling Unit
gpcd	Gallons per Capita per Day
gpm	Gallons per Minutes
gpm/ft	Gallons per Minute per Foot of Drawdown
LSCE	Luhdorff & Scalmanini Consulting Engineers
µS/cm	Micro-Siemens per Centimeter
MCL	Maximum Contaminant Level
MG	Million Gallons
MGD	Million Gallons per Day
MGY	Million Gallons per Year
MOU	Memorandum of Understanding Regarding Urban Water Conservation in California
NPDES	National Pollutant Discharge Elimination System
RWQCB	Regional Water Quality Control Board
SBX7-7	Senate Bill SBX7-7, Water Conservation Bill of 2009
TDS	Total Dissolved Solids
TODB	Town of Discovery Bay Community Services District (District)
UV	Ultraviolet
UWMP	Urban Water Management Plan
WDR	Waste Discharge Requirements
WMP	Water Master Plan

WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant
WRCC	Western Regional Climate Center

This page intentionally left blank.

Chapter 1 - Introduction and Overview

1.1 Background and Purpose

Urban Water Management Plans (UWMPs) are State-mandated water supply planning documents required by the Department of Water Resources (DWR) to be completed every five years by all urban water suppliers that have 3,000 or more service connections or supply 3,000 or more acre-feet of water per year. The Town of Discovery Bay Community Services District (District) prepared this 2015 UWMP to comply with the *UWMP Act* (California Water Code Division 6, Part 2.6, Sections 10610 through 10657) and the *Water Conservation Bill of 2009* (SBX7-7). The California Department of Water Resources prepared a 2015 *UWMP Guidebook for Urban Water Suppliers* (Guidebook), which was utilized to ensure that this 2015 UWMP complies with the state legislative requirements. Appendix A provides a completed UWMP Checklist per the Guidebook.

The purpose of the UWMP is to direct long-term resource planning to ensure adequate water supplies meet existing and future demands over a 20-year planning horizon and under various drought and water shortage scenarios. Furthermore, with goals set forth in the *Water Conservation Bill of 2009* to reduce urban per-capita water use by 20% by 2020, each urban water supplier was required to set targets for water supply reduction in the 2010 UWMP.

This 2015 UWMP presents updates to the interim water use targets that were established in the 2010 UWMP, in addition to updating other aspects of the 2010 UWMP such as population growth, water deliveries and uses, water supply sources, efficient water uses, and water demand management measures (DMMs) with implementation strategies and schedules. Finally, the 2015 UWMP is required to include a water loss audit using American Water Works Association (AWWA) Free Water Audit Software.

The 2015 UWMPs were due July 1, 2016. The District is submitting this plan retroactively in order to define its base water use and water use targets to comply with the requirements of the State legislature. This 2015 UWMP is prepared as an update to the 2010 UWMP and includes data up to 2015.

1.2 Urban Water Management Planning and the California Water Code

The Urban Water Management Planning Act of 1983 (Act) is described in the California Water Code Division 6, Part 2.6, Sections 10610 through 10657. Within the California Water Code (CWC) Section 10620(d)(2), it requires the urban water supplier to coordinate the preparation of the UWMP with other appropriate agencies in the area to the extent practical. Furthermore, CWC Section 10642 requires the water supplier to make the UWMP available for public inspection and hold a public hearing. The hearing should include specific discussion of the UWMP with regard to the present and proposed future measures, programs, and policies to help achieve the water use reductions goals.

In accordance with the code requirements, the District will schedule a public hearing to review, consider changes and adopt the 2015 UWMP. At least 60 days prior to the public hearing to review and adopt the UWMP, TODB will notify nearby applicable agencies of the intent to adopt the 2015 UWMP.

1.3 Urban Water Management Plans in Relation to Other Efforts

Water management is accomplished through multiple means such as city and county General Plans, Water Master Plans, Groundwater Management Plans, and others. Each of these planning efforts is greatly enhanced when it relies upon the information found in the other documents. This UWMP incorporates information and data from these sources as appropriate.

1.4 UWMP Organization

This report is organized into the following sections as outlined in the 2015 Guidebook:

1. Overview of the Act and a summary of the sections in this UWMP
2. Overview of the UWMP preparation
3. Description of the service area, climate, water supply facilities, distribution system, and historical and projected population
4. Historical and projected water use
5. Baselines and targets for per capita water use
6. System water supplies including recycled water
7. Water supply reliability
8. Water shortage contingency plan
9. Demand management measures employed by the City
10. Plan adoption, submittal, and implementation

A checklist of these required elements addressed in this UWMP is provided in **Appendix A**. This checklist specifies where each item is located in this UWMP.

Chapter 2 - Plan Preparation

2.1 Basis for Preparing a Plan

The Town of Discovery Bay Community Services District is a retail urban supplier that supplies more than 3,000 service connections with more than 3,000 ac-ft of water per year. Both of these elements qualify the District to complete an UWMP to comply with the CWC. Table 2-1 presents the system's name, number, number of municipal connections, and volume of water supplied in 2015.

Table 2-1. Retail: Public Water Systems

Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015 (MG)
CA 0710009	Town of Discovery Bay Community Services District	5,947	852
TOTAL		5,947	852

2.2 Regional Planning

The District has selected individual reporting for this UWMP since its water supply is not influenced by other water purveyors.

2.3 Individual or Regional Planning and Compliance

The District has elected to complete an individual UWMP covering its service area in compliance with the CWC.

Table 2-2. Plan Identification

Table 2-2: Plan Identification			
Select Only One	Type of Plan		Name of RUWMP or Regional Alliance <i>if applicable</i> <i>drop down list</i>
<input checked="" type="checkbox"/>	Individual UWMP		
	<input type="checkbox"/>	Water Supplier is also a member of a RUWMP	
	<input type="checkbox"/>	Water Supplier is also a member of a Regional Alliance	
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)		
NOTES:			

2.4 Fiscal or Calendar Year and Units of Measure

This UWMP is reported on a calendar year basis using million gallons (MG) as the unit of measure, as shown in Table 2-3.

Table 2-3. Agency Identification

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables Are in Calendar Years
<input type="checkbox"/>	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	MG
NOTES:	

2.5 Coordination and Outreach

The District only provides water from its groundwater wells to the TODB. No water is purchased from a wholesale water supplier.

Table 2-4. Retail: Water Supplier Information Exchange

Table 2-4. Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name <i>(Add additional rows as needed)</i>
N/A

The Act requires the District to coordinate the preparation of its UWMP with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies to the extent practicable. The District has coordinated this UWMP with other agencies and communities as summarized in Table 2-5.

Coordination efforts were conducted to: (1) inform other agencies of the District's activities, (2) gather high-quality data for use in developing the UWMP, and (3) coordinate planning activities with other related regional plans and initiatives.

Table 2-5. Coordination with Appropriate Agencies for Plan Preparation

Table 2-5. Coordination with Appropriate Agencies for Plan Preparation							
Coordinating Agencies ^{1,2}	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved / No information
Contra Costa Water District					X	X	
East Contra Costa Irrigation District					X	X	
City of Brentwood					X	X	
Diablo Water District					X	X	
Contra Costa County					X	X	
General Public			X		X	X	
¹ Indicate the specific name of the agency with which coordination or outreach occurred.							
² Check at least one box in each row.							

Chapter 3 - System Description

3.1 General Description

The Town of Discovery Bay is located adjacent to the Sacramento-San Joaquin Delta (Delta) and is approximately twenty miles due west of the city of Stockton and six miles southeast of the city of Brentwood off State Highway 4. The Town of Discovery Bay is a largely residential community with limited commercial development and institutional facilities. There is no industrial land-use within Discovery Bay. The community was developed and constructed within a network of man-made lakes and channels that are connected to the Delta and is known for its recreational activities.

The levees and waterways within Discovery Bay are managed and maintained by Reclamation District 800, the California Department of Boating and Waterways, and the US Army Corps of Engineers. The system is defined by relatively flat topographies with mean sea level elevations ranging from 5 feet to 15 feet across the entire system.

The Town of Discovery Bay is an unincorporated community that operates as a Community Services District, formed in 1998, and is governed by a 5-member elected Board of Directors. Prior to the formation of the Community Services District, the developments were privately owned and the water system was managed by the Sanitation District No. 19. The first developments in the Town of Discovery Bay were constructed in the early 1970's as a resort community. Today, the Town is primarily a year-around community with approximately 14,900 residents.

The Town of Discovery Bay Community Services District (TODB) serves as the Town's local government tasked with providing and maintaining the municipal public water (water supply, treatment and distribution) and wastewater systems (collection, transmission and treatment) to approximately 5,950 homes and businesses. The District also manages the Town's common landscaping and recreation zones. The Board has no land-use or zoning authority, however, it advises County of Contra Costa on decisions related to municipal services not provided by the TODB.

3.2 Service Area Boundary Maps

The District's public water system derives all of its water supply from six active groundwater supply wells. Raw water from the wells is delivered and treated at two water treatment plants (WTPs): the Newport WTP and the Willow Lake WTP. Storage tanks are located at each plant to provide operational equalization and reserves for fire flow. Booster facilities draw upon the storage tanks to provide the flow and pressure required in the interconnected distribution system. Each water treatment plant is equipped with standby generators to operate the facilities in the event of prolonged power outages. The distribution system consists of a network of piping that varies in material, age, and size (ranging in diameter from 6-inch through 20-inch). The system operates as one pressure zone.

Figure 3-1 provides a map of the water system including service area boundary, water supply sources, water treatment plants, and distribution piping. Details of the water system are discussed below.

3.2.1 Potable Water Service Area

Discovery Bay is predominately a residential community, with some commercial, institutional and irrigation water uses. There is no industrial water use. Through 2015, the District serves potable drinking water to approximately 14,900 people via 5,947 service connections. Of those, 5,795 are residential services, 56 are commercial and institutional, and 96 are landscape irrigation (e.g. parks, greenbelts, etc.).

The District prepared a 2010 Water Master Plan¹ (WMP) that covered a ten-year planning horizon. It was assumed that growth in that period would be driven by housing development plans from local developers. There was also minor infill of vacant undeveloped lots within existing neighborhoods. The District defined the areas of growth and provided an estimated schedule for completion based on input from the developers. The future developments would build-out the existing service area boundary with some growth planned to occur outside the existing service area boundary.

In preparing this UWMP, the District provides updates to the historical number of service connections reported in the 2010 WMP and projections of population growth. In 2015, the District had 5,947 total service connections serving a population of 14,895. By 2020, the District projects a total of 6,914 service connections serving a population of 18,500.

3.2.2 Water Supply Wells

The six active groundwater supply wells deliver groundwater to the treatment plants through dedicated raw water pipelines (Wells 1B, 2, 4A, 5A, 6, and 7). Wells 1B, 2, and 6 deliver water to the Willow Lake WTP. Wells 4A, 5A, and 7 deliver water to the Newport WTP. Well 2 is the oldest active well, constructed in 1971. Wells 1B, 4A and 5A were constructed between 1991 and 1996. Well 6 was constructed in 2009. Well 7 is the newest well, constructed in 2015.

The combined Well capacity is approximately 9,700 gpm. As presented in the 2010 WMP, Well 7 was constructed per the District's Capital Improvement Plan (CIP) as a backup supply well to meet current and future water demands with the largest producing supply well offline.

3.2.3 Water Treatment Plants and Storage

In the early 2000s, the District constructed two centralized water treatment facilities for removal of iron and manganese in the groundwater. The facilities are known as the Willow Lake Water Treatment Plant (WTP) and the Newport WTP. The treatment process is the same at both plants: raw water is chemically oxidized and filtered through manganese-greens and media filters and then stored in onsite reservoirs after treatment. Booster pumping stations draw from the reservoirs to maintain a pressurized water distribution system. Each treatment plant is equipped with a 750-

¹ 2012, Luhdorff & Scalmanini Consulting Engineers, Discovery Bay 2010 Water Master Plan

kilowatt, diesel-powered backup generator, which can provide power to the entire treatment plant in the event of power outages.

The combined treatment capacity of both water treatment plants is 6,550 gpm. The combined storage capacity of the system is 2 million gallons. A new 850 gpm filter will be added to the Willow Lake WTP and an additional 0.275 million gallons of additional storage will be added to the Newport WTP per the District's CIP in order to meet water demands projected to the 2020-21 fiscal year.

3.2.4 Water Distribution System

The distribution system has approximately 50 miles of mainline piping ranging in size from 6-inch to 20-inch in diameter. A majority of the system is 8-inch pipe, with 12-inch and 16-inch arterial mains. The system contains approximately 18 miles of asbestos cement (AC) pipe, 31 miles of PVC pipe, and about 1 mile of cement and mortar lined cast iron and ductile iron pipe. The 2010 WMP indicated that future subdivisions would add approximately 6.5 miles of pipeline to the system.

3.2.5 Service Area Changes

There are several developments within the Town of Discovery Bay as part of the growth forecasts and water master planning. One development in particular would result in a modification to the Service Area; this development is known as the Pantages and it consists primarily of 292 single-family residential housing units. The Pantages project has completed a Draft and Final Environmental Impact Report (EIR) that involved public comment. Annexation for the project is still not complete.

3.3 Service Area Climate

The climate in Discovery Bay consists of cool and humid winters and hot and dry summers, characteristic of the areas surrounding the Sacramento-San Joaquin River Delta. Though climate data is not recorded in Discovery Bay, historic climate data sets are available for nearby cities. The weather station used in this UWMP is located in the City of Antioch, located approximately 20 miles northwest of Discovery Bay. Climate data is available for this station from 1955 on the Western Regional Climate Center (WRCC)² website. Average temperatures range from 37°F to 91°F, but the extreme low and high temperatures have been 18°F and 117°F, respectively. The rainy season typically starts in November and ends in March, with some rain events occurring as early as September or as late as May. During the rainy season, average monthly precipitation is about 2 to 3 inches, and monthly precipitation has ranged from 0 to 9 inches. Average annual precipitation is 13 inches, and the maximum is 29 inches.

High water demand for the TODB is correlated with the hot and dry summers. Private landscape irrigation, including lawn irrigation, is a significant component of the higher summer water

² Western Regional Climate Center website, Cooperative Climatological Data Summaries, NOAA Cooperative Stations, Antioch Pump Plant 3, California: <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0232>

demands. Additionally, there is an unquantified vacation and tourist population that rises during the summer for recreation. Water demands are lowest during the winter months.

3.4 Service Area Population and Demographics

The service area population methods presented in the DWR Guidelines³ were applied to estimate the District's service area population. The service area population estimates below are used in calculating the baseline per capita water use (see **Section 5.6**).

US Census Bureau (census) data was used as the basis for population estimates. The census identifies Discovery Bay as a "census designated place" (CDP), which is a term for populated areas that resemble incorporated places but are not incorporated under the laws of the state. The Census Block Map for Discovery Bay CDP overlaps the TODB Service Area Boundary. Accordingly, the TODB falls into Category 1 of the DWR Guidelines, where the actual distribution area overlaps more than 95-percent with the Census Block Map estimates for the community. Therefore, the census data for the Discovery Bay CDP is directly used to determine service area population of the TODB during baseline compliance years.

The population estimates are based primarily on two information sources: 1) the census data, and 2) the number of homes added since 2010. The 2000 and 2010 Census Reports show the TODB had a population of 8,981 and 13,352, respectively. The 2010 Census shows 5,397 total household units, 4,742 households used as usual residences, and a 2.74 persons-per-household factor. The US Census defines the "usual residence" as the place where the person lives and sleeps most of the time.

The TODB observes a transient population associated with the recreational activities within the community. Using 2010 Census data, the difference of total household units and the households used as usual residences is 661 households, which is assumed to represent vacation households and transient population. Furthermore, it is assumed that these homes are occupied 25-percent of the time at 2.74 persons-per-household. This equates to approximately 453 people annually in the transient population in 2010. Adding this to the live-in resident population in 2010 results in a total 2010 population of 13,805.

Since 2010, new houses have been added. It is observed that these homes are typically occupied by live-in residences (i.e. not vacation housing). For each home added, it is assumed the population increases by 2.74 people. From 2010 to 2015, 398 service connections were added. Utilizing the 2.74 persons-per-household factor, the estimated population in 2015 is 14,895. From 2015 to 2020 it is projected there will be 967 homes added. This is based on the build-out of the existing service area identified in the 2010 WMP. The population by 2020 is estimated to be 18,500 using the growth of homes and the 2010 basis.

Local considerations were made to assess growth beyond the 2020 build-out. There are other potential lands surrounding the TODB that have revealed interest for development. The County of

³ March 2016, 2015 Urban Water Management Plans Guidebook for Urban Water Suppliers, California Department of Water Resources

Contra Costa General Plan⁴ has identified a need for additional housing in the unincorporated areas of East Contra Costa County. However, the only available lands are in ecologically sensitive areas (e.g., in several feet of peat, marinas, and waterways). Based on the time it has taken current developments to undergo environmental, permitting, and public review, and based on economic considerations, the TODB forecasts that any additional housing beyond 2020 would not result in new housing being occupied until 2030 at the earliest.

Accordingly, the population estimates in this plan forecast a lull between 2020 and 2030, to account for the planning time required for any future developments. Beginning in 2030 it is assumed that future housing projects will have been completed, and service area population will continue to grow at the historic average annual growth rate of 4-percent for the TODB.

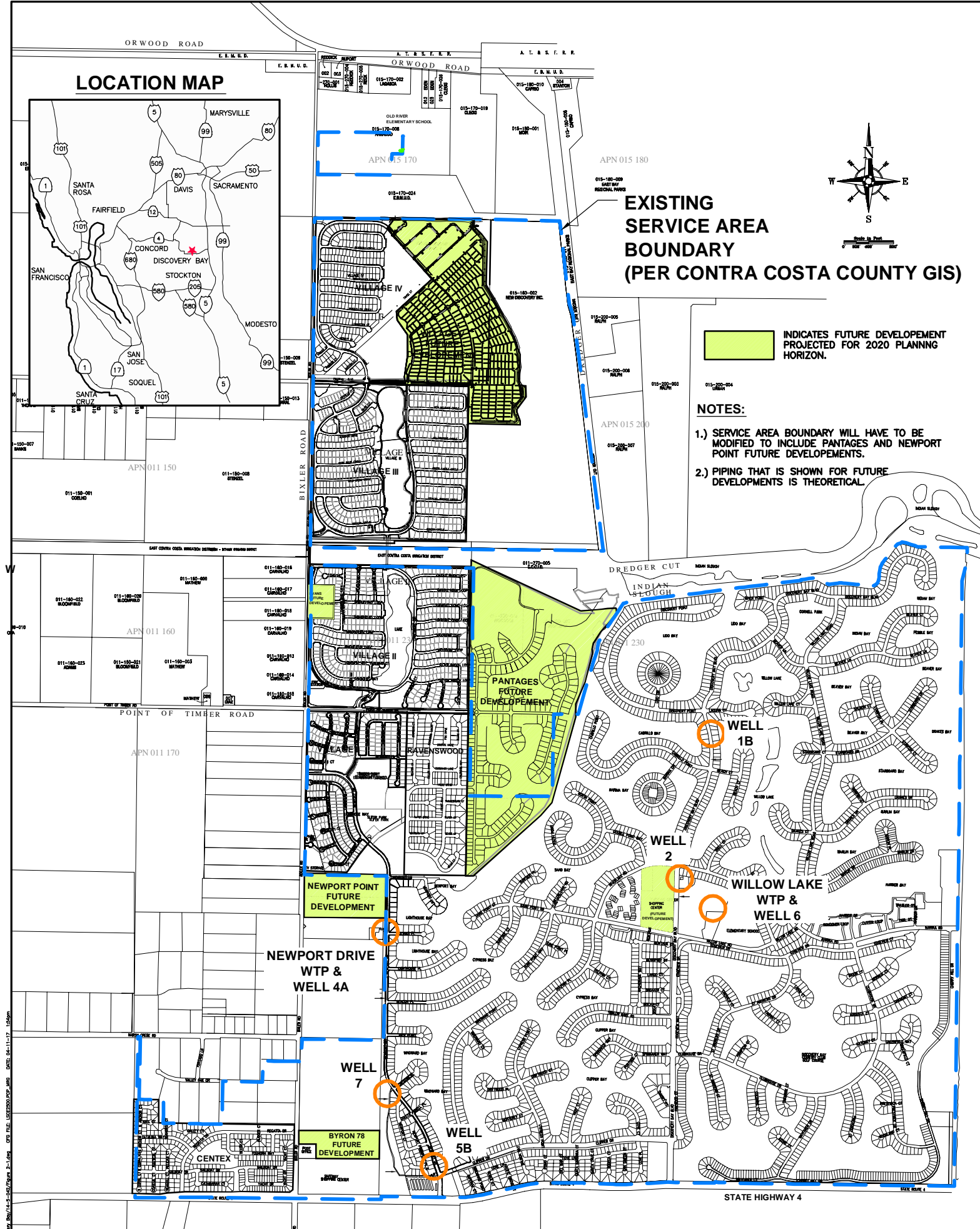
Table 3-1. Retail: Population – Current and Projected

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040(opt)
	14,895	18,500	18,500	18,500	22,374	27,059
NOTES: Projected populations are based on proposed new development construction.						

⁴ 2013, Contra Costa County General Plan 2020 Update

NOTES:

- 1.) SERVICE AREA BOUNDARY WILL HAVE TO BE MODIFIED TO INCLUDE PANTAGES AND NEWPORT POINT FUTURE DEVELOPEMENTS.
- 2.) PIPING THAT IS SHOWN FOR FUTURE DEVELOPEMENTS IS THEORETICAL.



Chapter 4 - System Water Use

4.1 Recycled versus Potable and Raw Water Demand

The TODB does not use or have a recycled water system. Raw water pumped from the District's wells are treated before use throughout the system.

4.2 Water Uses by Sector

Potable water demands by water sector for 2015 are based on metered customer use. The TODB meters about a third of the water deliveries. The TODB's water system serves about 5,950 service connections, of which about 2,400 are metered. The District is currently conducting installation of water meters to all service connections to be completed by end of 2017. Water usage by unmetered connections are calculated by determining the water use per connection for metered connection for each sector.

The TODB provides water treatment and distribution services as well as wastewater collection, treatment, and treated water disposal services to the following water sectors:

- **Single-Family Residential** – This sector refers to single-family residences in an identifiable suburban residential neighborhood or cluster-style development designed with open space and other amenities.
- **Multi-Family Residential** – This sector refers to families living in apartments and condominiums in structures of two or three stories with off-street parking and other requirements for higher density living.
- **Commercial/Institutional/Industrial** – This sector includes commercial, government, and industrial uses. It primarily includes uses associated with commercial buildings (e.g. landscaping, toilets, heating, ventilation, air conditioning, etc.) and commercial uses (e.g. car washes, laundries, nurseries, etc.).
- **Landscape** – This sector primarily includes raw water (untreated) use for irrigation at parks, schools, cemeteries, churches, residences, or public facilities. This sector also includes recycled water at various parkways and landscaped medians throughout the City.
- **Losses** – This sector includes all water not accounted in metered usage and estimates of unmetered usage. This includes leaks, pipe breaks, and hydrant flushing.

Table 4-1 presents the current 2015 water uses by sector.

Table 4-1. Retail: Demands for Potable and Raw Water – Actual

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type (Add additional rows as needed)	2015 Actual		
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume
Other	Residential	Drinking Water	638
Commercial		Drinking Water	34
Institutional/Governmental	Included in Commercial	Drinking Water	
Landscape		Drinking Water	105
Losses		Drinking Water	91
TOTAL			867
NOTES:			

Water demand projections are based on the projected populations in Table 3-1. In 2015, the per capital usage was 160 gpcd, which is 50 gpcd lower than the TODB's water use target for 2020 of 210 gpcd set in the 2010 UWMP. Considering that 2015 was the pinnacle of the drought to date, and extreme water conservation measures were in place, the production in 2015 is not a good benchmark for future projections. Production in 2015 was about 25% lower than 2014, which is the factor used to adjust projected water use in Table 4-2. The projection per capita production for 2020 is 200 gpcd, which meets the 20% target reduction set in the 2010 UWMP.

Table 4-2. Retail: Demands for Potable and Raw Water – Projected

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type (Add additional rows as needed)	Additional Description (as needed)	Projected Water Use Report To the Extent that Records are Available				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2020	2025	2030	2035	2040-opt
Single Family		1,009	1,009	1,009	1,221	1,476
Multi-Family	Included in Single Family					
Commercial		54	54	54	65	79
Institutional/Governmental	Included in Commercial					
Landscape		166	166	166	200	242
Losses		143	143	143	173	210
TOTAL		1,372	1,372	1,372	1,660	2,007

Table 4-3 shows total water demands, which is solely the demands listed in Table 4-2 since the TODB does not have a recycled water system.

Table 4-3. Retail: Total Water Demands

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 (opt)
Potable and Raw Water From Tables 4-1 and 4-2	867	1,372	1,372	1,372	1,660	2,007
Recycled Water Demand* From Table 6-4	0	0	0	0	0	0
TOTAL WATER DEMAND	867	1,372	1,372	1,372	1,660	2,007
<i>*Recycled water demand fields will be blank until Table 6-4 is complete.</i>						

4.3 Distribution System Water Losses

Distribution system losses are water losses that occur between the water source and point of customer consumption. The District completed the AWWA's Water Audit Software to calculate system losses shown in Table 4-4. This differs from losses reported in Tables 4-1 and 4-2 due to different methodologies. Total water losses are estimated to range from 0-12% of total production total.

Table 4-4. Retail: 12 Month Water Loss Audit Reporting

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
01/2015	90.6
<i>* Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.</i>	

4.4 Estimating Future Water Savings

In accordance with the 2015 UWMP Guidebook, the water use projects may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area. Town of Discovery Bay decided not to include an estimate of future water savings. The installation of water meters and implementation of DMM's help the District to achieve the 20x2020 water use targets per capita by the year 2020. No further water savings are estimated in the water use projections.

4.5 Water Use for Lower Income Households

Water suppliers must include in the UWMP an estimate of projected water use for lower income households as defined in Section 50079.5 of the Health and Safety Code. The estimate must be based on the housing element needs identified in the general plan for the water supplier's service area. TODB does not have direct information pertaining to lower income households served, or planned to be served in future developments in the service area. The Contra Costa County General Plan identified low-income housing needs in designated locations in the County; however, those needs were not designated specifically in Discovery Bay. The 2010 US Census reports that 6.3-percent of the population in Discovery Bay is below the poverty. For the purposes of the UWMP, projected water deliveries to low-income households is assumed to be 6.3-percent of total water deliveries.

Table – Low-income project water demands

Table 4-5. Retail: Inclusion in Water Use Projections

Table 4-5. Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i>	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc. utilized in demand projections are found.	
Are Lower Income Residential Demands Included in Projections? <i>Drop down list (y/n)</i>	No
NOTES:	

4.6 Climate Change

The Town of Discovery Bay has not conducted any formal assessment of the impacts of climate change on the local water suppliers other than a recent evaluation of the effects on local groundwater conditions as a result of the record 5-year drought. LSCE produced a memorandum on June 20, 2016 exploring groundwater conditions of the underlying aquifers of the TODB during drought. The analysis determined that there was a full recovery of groundwater levels proceeding the droughts of 2007-09 and 2012-2014. The latter drought produced some of the driest conditions on record, however, groundwater levels were unaffected. Considering that the TODB is making efforts to reduce the per capita water usage (see **Chapter 5**) and have exceeded its 2020 water usage goal, the District has taken measures to prepare for more extreme dry conditions in addition to having a highly reliable water source.

Chapter 5 - SB X7-7 Baselines and Targets

5.1 Guidance for Wholesale Agencies

Not applicable.

5.2 Updating Calculations from 2010 UWMP

This 2015 UWMP uses the 2020 Urban Water Use Target from the 2010 UWMP without update. The 2010 UWMP completed for the TODB used the 2010 U.S. Census data to calculate per capita water usage, which complies with requirements to complete the 2015 UWMP. The SB X7-7 tables (**Appendix G**) were completed to demonstrate 2020 Target calculations and current compliance to meet the 2020 Target.

5.3 Baseline Periods

The District has set a baseline period from 2001 to 2010 to establish the 10-year baseline period for water use. Since the District has no recycled water use, the 10-year baseline is used over the 15-year baseline. The 5-year baseline period is from 2003 to 2007 (see **SB X7-7 Table-1**).

5.4 Service Area Population

The service area population methods presented in the DWR Guidelines⁵ were applied to estimate the TODB's service area population. The service area population estimates below are used in calculating the baseline per capita water use.

U.S. Census Bureau (census) data was used as the basis for population estimates. The census identifies the TODB as a "census designated place" (CDP), which is a term for populated areas that resemble incorporated places but are not incorporated under the laws of the state. The Census Block Map for Discovery Bay CDP overlaps the District's Service Area Boundary. Accordingly, the TODB falls into Category 1 of the DWR Guidelines, where the actual distribution area overlaps more than 95-percent with the Census Block Map estimates for the community. Therefore, the census data for Discovery Bay CDP is directly used to determine service area population of the TODB during baseline compliance years.

The population estimates are based primarily on two information sources: 1) the census data; and 2) the number of homes added since 2010. The 2000 and 2010 census reports show that the TODB had a population of 8,981 and 13,352, respectively. The census also shows the number of households, total housing units, and persons-per-household connection. The U.S. Census defines population and households as people that are counted at their "usual residence", which is defined

⁵ March 2016, 2015 Urban Water Management Plans Guidebook for Urban Water Suppliers, California Department of Water Resources

as the place where the person lives and sleeps most of the time. In 2010, there were 4,742 households with 2.74 persons-per-household, and 5,403 total housing units. Based on this data, there were 661 housing units not considered regular houses used as “usual residences”.

The TODB observes a transient population associated with local outdoor water and other recreational activities. The estimated number of houses used for vacation purposes is also based on the census data. The difference between total household units and households reported in the census represents houses that are not used as usual residences and are assumed to represent the vacation home use (i.e. there were approximately 661 vacation households in the TODB in 2010). It is assumed that these homes are occupied 25-percent of the time at 2.74 persons-per-household. This equates to approximately 453 people in the transient population. Adding this to the live-in resident population in 2010 results in a total 2010 population of 13,805.

Since 2010, new houses have been added. It is observed that these homes are typically occupied by live-in residences (i.e. not vacation housing). For each home added, it is assumed the population increases by 2.74 people. From 2010 to 2020 it is projected there will be 1,355 homes added. This is based on the build-out of the existing service area identified in the 2010 Water Master Plan. The population by 2020 is estimated to be 18,500 using the growth of homes and the 2010 basis.

Local considerations were made to assess growth beyond the 2020 build-out. There are other potential lands surrounding the TODB that developers have shown interest. The County of Contra Costa General Plan⁶ has identified a need for additional housing in the unincorporated areas of East Contra Costa County. However, the only available lands are in ecologically sensitive areas (e.g., in several feet of peat, marinas, and waterways). Based on the time it has taken current developments to undergo environmental, permitting, and public review, and based on economic considerations, the TODB forecasts that any additional housing beyond 2020 would not result in new housing being occupied until 2030 at the earliest.

Accordingly, the population estimates in this plan forecast a lull between 2020 and 2030, to account for the planning time required for any future developments. Beginning in 2030, it is assumed that future housing projects will have been completed and service area population will continue to grow at the historic average annual growth rate of 4-percent for the TODB.

The population growth of the TODB to 2040 is shown in **Table 3-1**.

The TODB is a Census Designated Place (CDP), which encapsulates all of the District’s service area. This UWMP utilizes 2010 Census data to determine the population used in calculations (2010 population of 13,352). The TODB is comprised of both full time residents and part-time/vacation residents, which would not be included in the Census population. Therefore, the Census population is less than the actual number of people the District serves on a daily basis.

The U.S. Census differentiates between “total households” and “usual households” in the TODB CDP statistics. The difference between these values is attributed as the number of vacation residences in the TODB.

⁶ 2013, Contra Costa County General Plan 2020 Update

5.5 Gross Water Use

The TODB does not use any water outside of drinking water. This includes recycled water, water placed into long term storage, water conveyed to other urban suppliers, and agricultural use. Therefore, the gross water use of the TODB is the total amount of water pumped from the District's two WTPs with no adjustment (see **SB X7-7 Table 4A**).

5.6 Baseline Daily Per Capita Water Use

As stated in the Water Conservation Bill of 2009, Senate Bill SBX7-7 (SBX7-7), an urban retail water supplier shall include in its Urban Water Management Plan the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use. The plan should include the basis for determining those estimates and references to supporting data.

Baseline water use and targets were determined using *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*⁷, developed by DWR for consistent implementation of SBX7-7. The baseline and target water use presented in this chapter were developed individually by the TODB, not regionally with other agencies.

The baseline daily per-capita water use (i.e. baseline water use) serves as the basis for setting the target water use reduction goals by 2015 and 2020. To establish baseline water use, water suppliers must define a 10-year or 15-year base (i.e., baseline) period for water use. The 15-year baseline period applies to a water supplier that met at least 10 percent of its 2008 retail water demand through recycled water, which the TODB did not. Therefore, a 10-year base applies to the TODB.

Calculation of the baseline water use is based on the estimated service area population and the gross water use for each year in the base period. **Chapter 3** provided estimates of the service area population. Gross water use was identified using the District's production records from its water production facilities. The water system, as described in **Chapter 3**, consists of two central water treatment plants that receive raw water from six groundwater supply wells. The system does not have imported water nor does it provide wholesale water. Historically, the system has not used recycled water. However, recycled water use has recently been incorporated into the wastewater treatment plant, but is not included in any reduction of domestic water use. Historical records of water production from the water treatment plants represent the gross water use of the system.

The daily per-capita water use is calculated for each baseline year. The baseline daily per capita water use was calculated using the average of the per-capita water use for each baseline year, and is 261 gallons per capita per day (gpcd) for the 10-year baseline and 264 gpcd for the 5-year baseline. **SB X7-7 Table 5**, below, summarizes the service area population, gross water use, the calculated daily per capita water use for each baseline year, and the baseline daily per capita water use. Units are expressed in million gallons per day (mgd) and gallons per capita per day (gpcd).

⁷ February 2011, Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, California Department of Water Resources

SB X7-7 Table 5. Gallons Per Capita Per Day (GPCD)

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year		Service Area	Annual Gross	Daily Per Capita
		Population	Water Use	Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2001	9,594	818	234
Year 2	2002	9,594	851	243
Year 3	2003	9,447	921	267
Year 4	2004	11,125	1,035	255
Year 5	2005	12,034	1,204	274
Year 6	2006	13,106	1,185	248
Year 7	2007	13,110	1,322	276
Year 8	2008	13,164	1,328	276
Year 9	2009	13,155	1,282	267
Year 10	2010	13,352	1,306	268
10-15 Year Average Baseline GPCD				261
5 Year Baseline GPCD				
Baseline Year		Service Area	Annual Gross	Daily Per Capita
		Population	Water Use	Water Use
Year 1	2003	9,447	921	267
Year 2	2004	11,125	1,035	255
Year 3	2005	12,034	1,204	274
Year 4	2006	13,106	1,185	248
Year 5	2007	13,110	1,322	276
5 Year Average Baseline GPCD				264
2015 Compliance Year GPCD				
2015		14,895	852	157

5.7 2015 and 2020 Targets

Each water supplier must establish a water use reduction target for 2020, referred to as the urban water use target. There are four methods available to water suppliers for determining the urban water use target.

- Method 1: 20% reduction of Baseline Daily Per Capita Water Use
- Method 2: Efficiency Standards
- Method 3: Hydrologic Region

- Method 4: Savings by Sector

Due to lower regional targets, and predominant residential uses in the TODB, Method 1 was selected as the most appropriate. The target is set equal to 80-percent of the baseline water use. Using this method, the urban water use target is 209 gpcd by the year 2020 (i.e., a 20-percent reduction from 2010).

In accordance with SBX7-7, water suppliers must confirm that the 2020 water use target meets the legislation's minimum water use reduction requirements by comparing the water use target determined above (209 gpcd) to the calculated water use for a 5-year baseline period, as shown in **SB X7-7 Table 5**, above. Following the DWR guidelines, the minimum required reduction in water use is calculated as 95-percent of the 5-year base water use (264 gpcd), which is 251 gpcd. The water use target (209 gpcd) is less than the minimum required (251 gpcd), and therefore no adjustment is needed to the water use target.

Finally, water suppliers must verify the interim water use target to achieve in 2015. The interim water use target is used to demonstrate progress being made toward achieving water reduction goals. The interim water use target by 2015 is calculated as the average of the baseline water use and the water use target, which is approximately 235 gpcd. Table 5-1 summarizes the baseline water use, water use target and interim water use target.

Table 5-1. Baselines and Target Summary

Table 5-1 Baselines and Targets Summary <i>Retail Agency or Regional Alliance Only</i>					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	2001	2010	261	235	209
5 Year	2003	2007	264		
*All values are in Gallons per Capita per Day (GPCD)					

5.8 2015 Compliance Daily per Capita Water Use (GPCD)

Table 5-2 below shows the TODB's compliance to date for meeting the 2015 Interim Target and the 2020 Target. The TODB's 2015 water usage was 157 gpcd, which is less than the Interim Target of 235 gpcd. Consequently, the TODB's 2015 usage also meets its 2020 Target of 209 gpcd. It is noted that during 2015 high levels of water conservation were in effect due to the ongoing drought, which has a significant effect on the per capita usage. Therefore, the yearly water use between 2015 and 2020 is expected to be higher than the 2015 usage, but is anticipated to continue to meet the 2020 Target due to conservation efforts enacted.

Table 5-2. 2015 Compliance

Table 5-2: 2015 Compliance Retail Agency or Regional Alliance Only								
Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD Enter "0" if no adjustment is made Methodology 8					2015 GPCD*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
157	235	0	0	0	0	157	157	Yes
*All values are in Gallons per Capita per Day (GPCD)								

5.9 Regional Alliance

Not applicable. The TODB is not part of a Regional Alliance.

Chapter 6 - System Supplies

6.1 Purchased or Imported Water

Not applicable. The TODB does not purchase or import water.

6.2 Groundwater

6.2.1 Basin Description

6.2.1.1 Groundwater Basin

The TODB overlies the northwestern portion of the Tracy Subbasin, which is one of sixteen subbasins in the San Joaquin Valley Groundwater Basin as designated by the California Department of Water Resources (Bulletin 118, 2003 Update). The Tracy Subbasin boundaries are defined by the Mokelumne and San Joaquin Rivers on the north; the San Joaquin River on the east; and the San Joaquin-Stanislaus County line on the south. The western subbasin boundary is defined by the contact between the unconsolidated sedimentary deposits and the rocks of the Diablo Range (DWR, 2004).

6.2.1.2 Geologic Setting and Occurrence of Groundwater

The TODB is located in eastern Contra Costa County in the northwestern San Joaquin River Valley portion of the Great Valley geomorphic province of California. The province is characterized by the low relief valley of the north-flowing San Joaquin River and the south-flowing Sacramento River, which merge in the Delta region just north of the community and drain westward to the Pacific Ocean.

To the west of the TODB, the Coast Range province consists of low mountains of highly deformed Mesozoic and Cenozoic marine sedimentary rocks. These thick marine rocks extend eastward below the Great Valley where they are the targets for gas exploration.

Overlying the marine rocks is a sequence of late Cenozoic (Miocene, Pliocene, and Pleistocene) non-marine sedimentary deposits. Small areas of surface exposures of these deposits occur along the edge of the Coastal Range. These beds dip moderately to the east and extend below the San Joaquin Valley. In the subsurface, the nature of these deposits is poorly known, but they are believed to be dominated by fine-grained clays, silts, and mudstones with few sand beds. The lower portion of these deposits may be, in part, equivalent to the Miocene-Pliocene Mehrten Formation along the east side of the Great Valley. The Upper portion of Pliocene and Pleistocene age may be equivalent to the Tulare Formation along the west side of the San Joaquin Valley to the south, and the Tehama Formation of the Sacramento Valley to the north. It is believed these deposits extend from about 400 feet to 1,500-2,000 feet below the San Joaquin River. Water quality from electric logs is difficult to interpret, but the quality appears to become brackish to saline with depth.

Late Cenozoic (Pleistocene and Holocene; 600,000 years to present) sedimentary deposits overlie the older geologic units. These deposits are largely unconsolidated beds of gravel, sand, silts, and clays. The deposits thicken eastward from a few tens of feet near the edge of the valley to about 400 feet at the Contra Costa County line. West of the TODB, the deposits are characterized by thin sand and gravel bands occurring within brown, sandy, silty clays and are believed to have formed on an alluvial fan plain fed from small streams off the Coastal Range to the west. The alluvial plain deposits interbed and interfinger with deposits of the fluvial plain to the east. The fluvial deposits consist of thicker, more laterally extensive, sand and gravel beds of stream channel origin interbedded with flood plain deposits of gray to bluish sandy to silty clays. The TODB overlies the fluvial plain area of eastern Contra Costa County. Groundwater supply in the TODB is extracted for supply from these deposits to a depth of about 350 feet.

The regional geologic setting is shown on the San Francisco-San Jose 1° by 2° quadrangle (Wagner and others, 1990). Detailed surface geologic maps of the Coast Range in this area include Davis and Goldman (1958), Brabb and Others (1971), and Dibblee (1980 a, b, c). Subsurface characterization of the marine rocks beneath the San Joaquin Valley can be found in oil and gas field summaries produced by the California Division of Oil and Gas (1982), and Thesken and Adams (1995). General geologic descriptions and histories of these marine rocks are contained in Bartow (1991) and Bertoldi and Others (1991). Because of their marine origin, highly consolidated nature, and presence of saline water, the Mesozoic and tertiary marine rocks are not a source of potable water supply in the region.

A regional study of the thickness of the Tertiary-Quaternary non-marine sedimentary deposits was made by Page (1974) and evaluations of the depth to base of fresh water by the California State Water Project Authority (1956) and Berkstresser (1973). Regional studies of the Sacramento-San Joaquin Valley groundwater basin were performed by Bertoldi and Others (1991) and Page (1986). The United States Geological Survey (USGS) compiled water quality information that covers the area in a series of reports (Keeter 1980; Sorenson 1981; and Fogelman 1982). California Department of Water Resources (DWR, 1967) covers the groundwater resources of the San Joaquin County to the east.

6.2.1.3 Hydrogeologic Setting in Discovery Bay

The hydrogeology of the TODB is illustrated through a geologic cross section on **Figure 6-1**. The cross section depicts water wells that are the source of supply for the District. The deepest sand unit encountered in water wells in the TODB is below about 350 feet and is interpreted as the uppermost, older non-marine deposits of largely fine-grained silt and clay with thin, fine sand interbeds. Water quality appears to be poor to brackish in this unit.

Overlying units are comprised of Pleistocene alluvium of generally thick beds of sand and gravel with a thin clay interbed. These are probably stream channel deposits of a northward flowing ancestral San Joaquin River. This is the main production aquifer completed in all of the District's supply wells (see Aquifer A on **Figure 6-1**).

Overlying Aquifer A is a thick sequence of grayish to bluish silt and clay with thin inter beds of sand. This unit, which confines the production zone, appears to represent deposition on a

floodplain with the main stream channels probably further east. The thin sand appears to represent flood-sprays of sand spread out on to the flood plain.

Another aquifer unit, labeled Aquifer B on **Figure 6-1**, occurs above about 140 feet below ground surface and consists of a thinner sand and gravel bed. Again, these appear to be stream channel deposits. However, Aquifer B has been found to contain brackish to saline water, which must be sealed off to protect water quality of the supply source in Aquifer A and avoid corrosion of the well casing.

Overlying Aquifer B is a sequence of gray to brown silt and clay beds with some thin sand beds. These beds appear to be either floodplain deposits or possibly distal alluvial plain deposits from the west.

6.2.1.4 Groundwater Conditions

Groundwater conditions that are relevant to the District are discussed below in terms of water levels and water quality.

Groundwater Levels

Groundwater level data are available since the late 1980s when the TODB was developed. Since that time, the TODB has conducted a monitoring program to aid in sustainable groundwater management. **Figure 6-2** is a hydrograph showing water level trends using data obtained from the District's supply wells. The hydrograph highlights drought periods and pumpage. The trends in pumpage correspond to population growth rates.

Early water well driller reports indicate that before significant groundwater pumping occurred, static levels in the TODB were near sea level. At this elevation, depth-to-water was about 10 feet below ground surface. With the onset of pumping and initial growth, the static level in production wells exhibited seasonal variations between 10 and 40 feet below ground surface (see **Figure 6-2**). During this period, pumpage increased from about 300 million gallons per year (MGY) in 1987 to about 800 MGY by 2001. Between 2001 and 2008, pumpage increased to 1,300 MGY. After 2008, pumpage leveled off as a result of the national economic downturn, and water levels since 2008 have exhibited stable to rising trends. Water level measurements in fall 2014 were higher than the last year of the 2007-09 statewide drought. The stability in groundwater levels in recent dry years indicates that groundwater pumpage is sustainable at current usage by the TODB.

Groundwater Quality

Groundwater quality from the District's supply wells meets all California primary drinking water standards. The groundwater does not meet secondary standards for manganese and exceeds the drinking water maximum contaminant limit (MCL) of 0.050 mg/L for that constituent. With manganese removal treatment instituted, manganese has been eliminated as a water quality issue.

Groundwater also is hard and high in total dissolved solids (TDS) concentration, but does not exceed the upper MCL (1,000 ppm) for TDS. Because of the depth of the primary aquifer (see

Aquifer A in **Figure 6-1**) and intervening clay layers, source protection is achievable with appropriate annular seals in the well structure. As a result, none of the wells have exhibited anthropogenic sources of contamination such as volatile or semi-volatile organic contaminants that are often found in urbanized settings.

The most important water quality concern for the District's well sources is the brackish to saline water that occurs in Aquifer B overlying the main completion targets of the supply wells (see **Figure 6-1**). Historic wells in the TODB experienced failure due to improper sealing of the well casing through the saline Aquifer B. This led to rapid corrosion of well casings and cross-contamination of the drinking water source by saline water. At present, Well 5A exhibits evidence of cross-flow and the well is operated under strict protocol to mitigate potential cross flow between Aquifers A and B. TDS in Well 5A recently raised to anomalously high levels on the order of 1,500 ppm. The other wells exhibit stable levels of TDS with time as shown in **Figure 6-3**.

In the absence of chronic downward trends in water levels or degraded water quality, the state of TODB's groundwater supply is considered sustainable and does not exhibit any characteristics of unsustainability as defined under the 2014 Sustainable Groundwater Management Act (SGMA). Furthermore, the historic trends through variable hydrologic periods, including the stability in groundwater levels through the recent drought in water years 2013-15, indicate that groundwater pumpage is sustainable at current usage by TODB. To ensure future sustainability, TODB is a participant with other local agencies in seeking to develop a Groundwater Sustainability Plan under SGMA.

6.2.1.5 Well Yields and Aquifer Characteristics

Specific capacities of the District's supply wells vary from less than 10 to over 30 gallons per minute per foot of drawdown (gpm/ft). At these magnitudes, the supply wells can be equipped to pump at capacities up to 2,200 gpm. Historic testing indicate that the primary production aquifer has a transmissivity ranging from about 50,000 to 100,000 gallons per day per foot and a storativity that is consistent with a confined system. Aquifer parameter estimates provide a basis for evaluating well performance and appropriate spacing of future wells to minimize mutual pumping interference.

Proper maintenance and early identification of degradation in well yields are important activities for a system that relies entirely on well water as a source. In 2007, the District instituted a biennial program to test the well facilities, which included quantification of specific capacity. Through this program, specific capacity testing is used to schedule rehabilitation programs and identify signs of structural problems. Each testing event is documented with a report discussing changes since the last reporting period and recommendations for preventative or remedial work to sustain source capacity. Since structural problems may be forewarned by increasing salinity (i.e., because of the presence of shallow brackish water), water quality testing is an integral part of the biennial testing.

6.2.2 Groundwater Management

Local water agencies including the District participated in a groundwater resources study of eastern Contra Costa County (LSCE, 1999). The east Contra Costa County area is also under a

Groundwater Management Plan (Diablo Water District, 2007), which was also prepared by LSCE. In addition, LSCE conducted a study of groundwater resources pertaining directly to Discovery Bay (1993) and a Water Master Plan (2010).

To ensure future sustainability, the District is a participant with other regional water users in seeking to form a Groundwater Sustainability Agency under the Sustainable Groundwater Management Act of 2014. In accordance with the legislative act, groundwater users shall develop a groundwater sustainability plan or alternative that achieves sustainable management of the resource.

Additionally, the District participates in the California Statewide Groundwater Elevation Monitoring Program (CASGEM). The District reports static groundwater levels from its monitoring wells biannually. The CASGEM program for the eastern Contra Costa County portion of the Tracy Subbasin is managed by the Diablo Water District.

6.2.3 Overdraft Conditions

The Tracy Subbasin of the San Joaquin Valley Groundwater Basin is not an adjudicated basin. Under CASGEM, it is listed as a medium priority basin, primarily due to irrigated acreage, number of wells, and population growth. No overdraft conditions are reported by DWR in Bulletin 118 but notes that groundwater quality is generally poor.

The reliability of future groundwater supply for the TODB is based on an assumption that the yield of groundwater system is sufficient to sustain current and future pumping. As indicated above, water level and water quality data indicate stable groundwater conditions at current levels of pumping and the TODB is taking measures to sustainably manage future growth in accordance with the Sustainable Groundwater Management Act of 2014.

6.2.4 Historical Groundwater Pumping

The TODB maintains six well facilities which meet the maximum day demand of its system with the largest well source offline, in accordance with State of California Code of Regulations, Title 22 California Waterworks Standards. All water is pumped from the Tracy Subbasin. The quantity of groundwater pumped from 2011 to 2015 is listed in Table 6-1.

Table 6-2. Water Supplies – Current and Projected

Table 6-1 Retail: Groundwater Volume Pumped						
Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	Tracy Subbasin of the San Joaquin Valley Groundwater Basin	1,173	1,218	1,286	1,123	852
TOTAL		1,173	1,218	1,286	1,123	852

Table 6-2, below, presents the information for the District's six production wells:

Table 6-2. Groundwater Supply Well Information

Table 6-2. Groundwater Supply Well Information						
	Well 1B	Well 2	Well 4A	Well 5A	Well 6	Well 7
WELL CONSTRUCTION						
Drilling Date	1995	1971	1996	1991	2009	2014
Well Diameter (inch)	16"	12"	16"	16"	18"	18"
Well Depth (ft)	350'	348'	357'	357'	360'	346'
Top Screen Interval	271'/289'	245'/335'	307'/347'	261'/291'	270'/295'	282'/292'
PUMP AND MOTOR						
Design Flow (gpm)	1,600	850	1,800	2,000	1,700	1,800
Design Head (ft)	280	190	190	180	230	345
Pump Type	Submersible	Oil Lube	Submersible	Water Lube	Submersible	Submersible
Installation Date	2012	2003	2001	2004	2010	2015
Pump Setting Depth (ft)	260'	220'	180'	240'	250'	290'
Column Diameter (inch)	12"	8"	12"	10"	12"	12"
Bowl Manufacturer	BJ/Flowserve	Goulds	BJ/Flowserve	Floway	BJ/Flowserve	BJ/Flowserve
Impeller Model	13MQH	11CHC	13MQH	14DKH	14EMM	15EMM
Number of Stages	3	4	3	3	3	4
Motor Horsepower	150 HP	100 HP	150 HP	200 HP	150 HP	200 HP
Well Control	Willow	Willow	Newport	Newport	Willow	Newport

6.3 Surface Water

The TODB does not use or have access to surface water.

6.4 Stormwater

The TODB does not use storm water for any uses and has no plans to do so.

6.5 Wastewater and Recycled Water

6.5.1 Recycled Water Coordination

The TODB owns and operates a community wastewater collection, treatment, and solids disposal facilities. The information in this section was provided by the TODB in coordination with the wastewater engineering consultant, Herwit Engineering, and from information provided in the TODB 2010 Wastewater Master Plan⁸. All recycled water opportunities would be solely supplied by the District's wastewater treatment plant (WWTP).

⁸ 2013, Stantec Consulting Services Inc., The Town of Discovery Bay Community Services District Wastewater Treatment Plant Master Plan

6.5.2 Wastewater Collection, Treatment, and Disposal

Wastewater is collected and conveyed to the WWTP by a network of gravity sewer mains and force mains. There are fifteen sewage pumping stations within the TODB sewage collection system that deliver sewage from the developments to the overall WWTP, located on the north and south sides of Highway 4 and directly southeast from the TODB.

The WWTP currently produces a disinfected secondary effluent that is discharged to Old River. The WWTP consists of an influent pump station, influent screening, secondary treatment facilities using oxidation ditches, and ultraviolet (UV) disinfection prior to discharge into Old River. The WWTP average daily flow in 2010 was approximately 1.75 million gallons per day (MGD). The facilities are permitted by the Regional Water Quality Control Board (RWQCB) to treat and discharge to Old River under specific waste discharge requirements (WDRs).

The facilities include a solids handling system for the residual sludge or biosolids developed in the WWTP. Solids handling facilities consist of waste activated sludge (WAS) pumping systems, a small aerobic digester, two sludge lagoons, a belt press dewatering facility, and four active solar sludge dryers.

Title 22 sets forth the regulations that govern recycled water treatment and uses. There are specific filtration and disinfection requirements to use recycled water in applications such as irrigation of landscaping areas. Currently, the effluent from the WWTP is not treated to meet the requirements of Title 22 for such applications. The District is planning to construct improvements in 2017 to treat all the effluent to meet the Title 22 requirements for “disinfected tertiary recycled water” in order to comply with the discharge permitting requirements of the National Pollutant Discharge Elimination System (NPDES). When these improvements are made, there will be a treated effluent from the WWTP that meets Title 22 recycled water standards that will be available for use in the water system for recycled water applications (e.g. landscape irrigation) but not for domestic drinking water purposes.

Table 6-3. (DWR Table 6-2) Wastewater Collected Within Service Area in 2015

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
<input type="checkbox"/>	There is no wastewater collection system. The supplier will not complete the table below.					
100%	Percentage of 2015 service area covered by wastewater collection system (optional)					
100%	Percentage of 2015 service area population covered by wastewater collection system (optional)					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? (optional) <i>Drop Down List</i>
Add additional rows as needed						
Town of Discovery Bay Community Services District	Estimated	475	Town of Discovery Bay Community Services District	WWTP No. 1 and No. 2	Yes	Yes
Total Wastewater Collected from		475				

Table 6-4. (DWR Table 6-3) Wastewater Treatment and Discharge Within Service Area in 2015

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015										
<input type="checkbox"/>	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.									
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number <i>(optional)</i>	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level <i>Drop down list</i>	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
WWTP No. 1 and 2	Old River	Old River South of Highway 4 Bridge		River or creek outfall	No	Secondary, Undisinfected	475	475	0	0
Total							475	475	0	0

6.5.3 Recycled Water System

All of the newer developments in the TODB (from 1999 and on) are constructed with “purple pipe”, which is dedicated for distribution of recycled water to the system. The older developments do not have a purple pipe system. The purple pipes can connect to public irrigation services as well as individual residences for landscape needs. It is estimated that at build-out in 2020, approximately 36% of the service area will have purple pipe. The estimated irrigation demand for these areas (residential and public irrigation) is approximately 300 MGY, and approximately half can be served recycled water (150 MGY) due to operational considerations with water quality.

Those developments with purple pipe are located on the opposite side of the service area from the WWTP. Connecting the purple pipe systems to the WWTP would require a 5-mile transmission, likely to be a 12-inch diameter pipe through congested utilities and a highway crossing. It is estimated that construction costs for such a project is on the order of \$4-6 million. Based on this

conceptual assessment, the project would likely serve up to 150 MGY, which equates to the amount of water used by 770 equivalent dwelling units (EDU). In comparison, a typical groundwater supply well in the TODB can serve twice as many EDU (approximately 1,500 EDU) and cost half as much to construct (approximately \$2 million). A recycled water pipeline is not being pursued due to cost-to-benefit and, given the current outlook of groundwater, appears to be sustainable. However, the project could become more economically feasible if grant funding were available to supplement the cost and will be considered further by the TODB.

6.5.4 Recycled Water Beneficial Uses

6.5.4.1 Current and Planned Uses of Recycled Water

As noted above the effluent from the WWTP does not currently meet Title 22 requirements for recycled water uses in the water system. However, Title 22 allows a restricted use of untreated recycled water onsite at the WWTP, provided public access to the recycled water is restricted. The District completed a project in early 2015 that utilizes the secondary effluent from the WWTP in the solids handling process.

Currently, the belt presses and spray nozzles in the solids handling process require a water source that uses approximately 20 MGY of potable water from the system. The actual water requirements vary based on time of year. A baseline flow of approximately 50 gallons per minute (gpm) is required with peak use over 300 gpm during the summer months when the belt presses and the drying process is operating. The maximum capacity of the onsite reclaim water system will be 400 gpm to supply water during peak demand requirements. With completion of this project, potable water is no longer required in the WWTP processes.

After completion of the tertiary treatment systems in 2017, the District will have recycled water available for use in the water system. There are potential opportunities for use of recycled water, however, none are being pursued at this time. Potential uses and limitations of recycled water are discussed below.

Water quality concerns: Of particular concern with recycled water application to irrigation is the source water quality. Boron and salinity are two important parameters when irrigating for agricultural and landscape purposes. Crops and vegetation have varying levels of tolerance to these parameters (among others); however, it generally starts to be an issue when boron is above 2 parts per million (ppm) or electrical conductivity (EC) is above 2000 micro-Siemens per centimeter ($\mu\text{S}/\text{cm}$). The groundwater wells have boron at approximately 1-2 ppm concentrations, whereas the secondary effluent from the WWTP contains boron ranging from 3-4 ppm. The groundwater wells generally have an EC of around 500 $\mu\text{S}/\text{cm}$, whereas the secondary effluent is 2100 $\mu\text{S}/\text{cm}$. Salinity is known to increase in wastewater due to point-of-use water softeners treating water hardness. Boron

and salinity will not be removed in the recycled water, and could pose operational issues if applied to landscape irrigation.

Similar recycled water quality issues are present in other systems. In response to recycled water quality issues it has become common practice to blend recycled water to decrease concentrations, or to cycle between recycled water and potable water to reduce soil column salt loading. For the purposes of assessing recycled water potential in the UWMP, it is assumed irrigation water could only meet half (50%) of its demand from recycled water due to poor water quality issues noted above.

Irrigation: Other potential uses for recycled water is irrigation in the TODB golf course or in the adjacent agricultural fields, neither of which is currently supplied water by the District's system. Therefore, supplying recycled water to these would not reduce the per-capita water use of TODB. The golf course is part of an HOA that has surface water rights for irrigation. Agricultural lands surrounding the TODB are irrigated with surface and groundwater. The TODB may still considered delivering recycled water to the golf course or agricultural fields as a benefit to regional water supplies even though it would not reduce the per-capita water use in the TODB system.

Groundwater Recharge: Groundwater recharge is another alternative for the recycled water use. As discussed above, the TODB's groundwater supply is from a confined aquifer system and could not be replenished from a surface recharge. Injection would be the only alternative for recharge, which has limited cost-to-benefit considering the high costs for delivery, construction, permitting and operational complexities associated with injection.

Table 6-5. (DWR Table 6-4) Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area								
<input checked="" type="checkbox"/>	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.							
Name of Agency Producing (Treating) the Recycled Water:		Town of Discovery Bay Community Services District						
Name of Agency Operating the Recycled Water Distribution System:		Town of Discovery Bay Community Services District						
Supplemental Water Added in 2015		No						
Source of 2015 Supplemental Water		N/A						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment <i>Drop down list</i>	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation			0	0	0	0	0	0
Landscape irrigation (excludes golf courses)			0	0	0	0	0	0
Golf course irrigation			0	0	0	0	0	0
Commercial use			0	0	0	0	0	0
Industrial use			0	0	0	0	0	0
Geothermal and other energy production			0	0	0	0	0	0
Seawater intrusion barrier			0	0	0	0	0	0
Recreational impoundment			0	0	0	0	0	0
Wetlands or wildlife habitat			0	0	0	0	0	0
Groundwater recharge (IPR)*			0	0	0	0	0	0
Surface water augmentation (IPR)*				0	0	0	0	0
Direct potable reuse				0	0	0	0	0
Other (Provide General Description)			0	0	0	0	0	0
Total:			0	0	0	0	0	0
*IPR - Indirect Potable Reuse								

6.5.4.2 Recycled Water Use

Table 6-6, below, compares projected 2015 recycled water use with actual 2015 recycled water use. There is no projected or actual recycled water use.

Table 6-6. (DWR Table 6-5) 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual			
<input checked="" type="checkbox"/>		Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type		2010 Projection for 2015	2015 Actual Use
Agricultural irrigation		0	0
Landscape irrigation (excludes golf courses)		0	0
Golf course irrigation		0	0
Commercial use		0	0
Industrial use		0	0
Geothermal and other energy production		0	0
Seawater intrusion barrier		0	0
Recreational impoundment		0	0
Wetlands or wildlife habitat		0	0
Groundwater recharge (IPR)		0	0
Surface water augmentation (IPR)		0	0
Direct potable reuse		0	0
Other		0	0
Total		0	0

6.5.5 Actions to Encourage and Optimize Future Recycled Water Use

The most feasible uses of recycled water include the onsite uses at the WWTP, irrigating in the system using the existing purple pipe network, golf course irrigation, and nearby agricultural irrigation. The latter two are not part of the TODB potable water demand and would not reduce per-capita consumption for the TODB. However, those may still be pursued as a benefit to other surface and groundwater uses outside of the TODB under a groundwater sustainability plan. Furthermore, as discussed above, irrigation uses within the system using the existing purple pipe are likely to only be pursued further if grant funding is identified for such a project.

Given the conclusions of limited current recycled water use and uncertainty with the viability of future recycled water use, there is no current plan to optimize recycled water nor is there a separate master plan for recycled water beyond the information presented above.

Table 6-7. (DWR Table 6-6) Methods to Expand Future Recycled Water Use

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
<input checked="" type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Add additional rows as needed			
Total			0

6.6 Desalinated Water Opportunities

The TODB does not plan to build desalinated water plants and there are no opportunities for the development of a desalinated water plant for future water supplies.

6.7 Exchanges or Transfers

The TODB does not participate in transfer or exchange programs and does not have any planned in the future.

6.8 Future Water Projects

The District plans on constructing a new production well (Well 8). Well 8 is anticipated to be brought online in 2019 and is estimated to supply about 1,800 gpm. Well 8 is intended to replace Well 5A, which has water quality problems as noted in Section 6.2.1.4. The addition of Well 8 will increase the reliability of the water supply though source capacity will ultimately not change with the intended destruction of Well 5A.

Table 6-8. (DWR Table 6-7) Expected Future Water Supply Projects or Programs

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
<input type="checkbox"/>	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
<input type="checkbox"/>	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply
	Drop Down List (y/n)	If Yes, Agency Name				
Add additional rows as needed						
Well 8	No		groundwater well	2019	All Year Types	0
NOTES: Well 8 is intended to replace Well 5A, which will be abandoned upon completion of Well 8.						

6.9 Summary of Existing and Planned Sources of Water

Tables 6-9 and 6-10 below summarize the Districts water sources:

Table 6-9. (DWR Table 6-8) Water Supplies – Actual

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
<div>Drop down list</div> <div>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</div>		Actual Volume	Water Quality <div>Drop Down List</div>	Total Right or Safe Yield <div>(optional)</div>
Add additional rows as needed				
Groundwater		852	Raw Water	
Total		852		0

Table 6-10. (DWR Table 6-9) Water Supplies – Projected

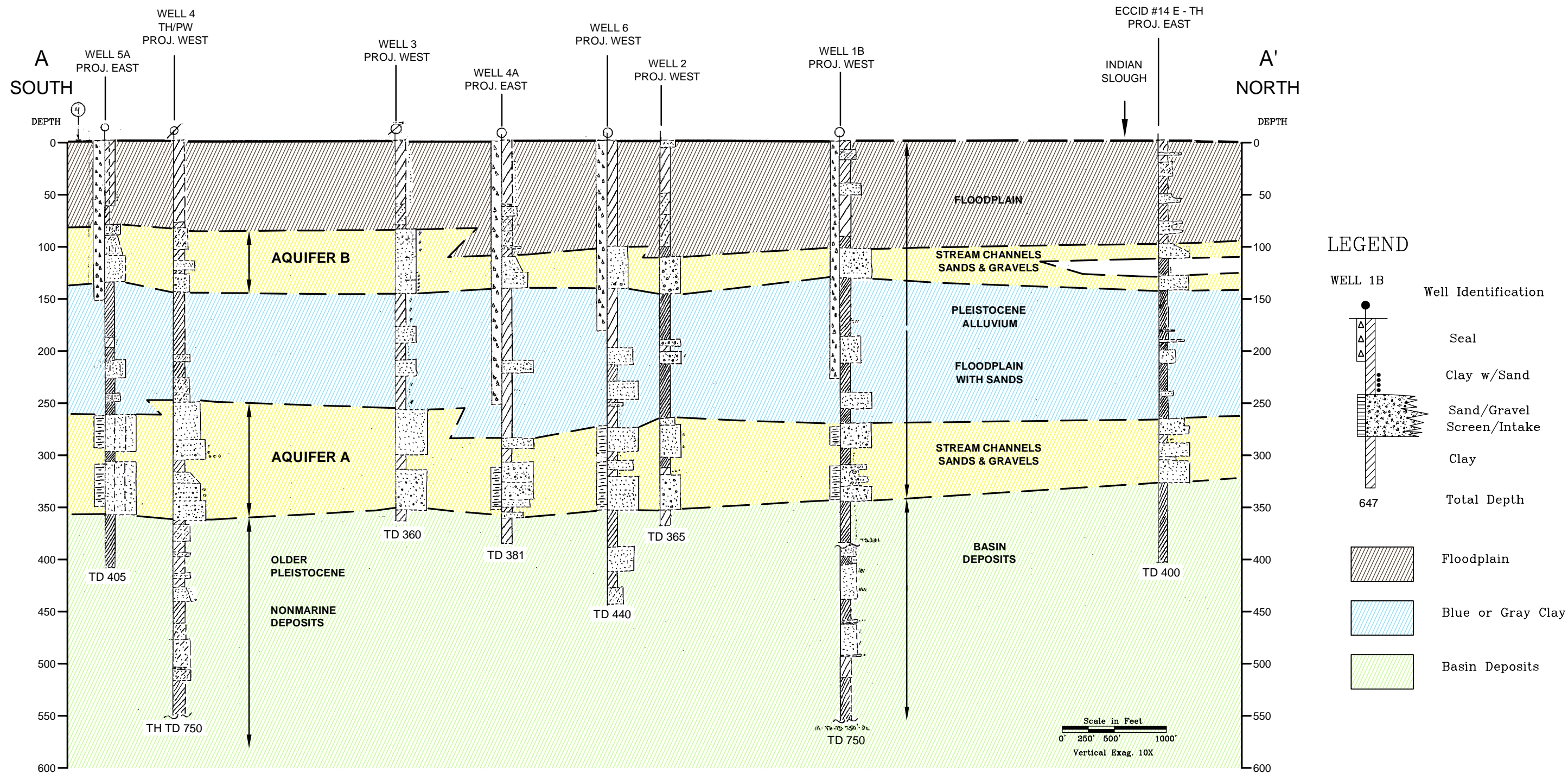
Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>									
<div>Drop down list</div> <div>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</div>		2020		2025		2030		2035		2040 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
		Add additional rows as needed									
Groundwater		2,500		2,500		2,500		2,500		2,500	
	Total	2,500	0	2,500	0	2,500	0	2,500	0	2,500	0

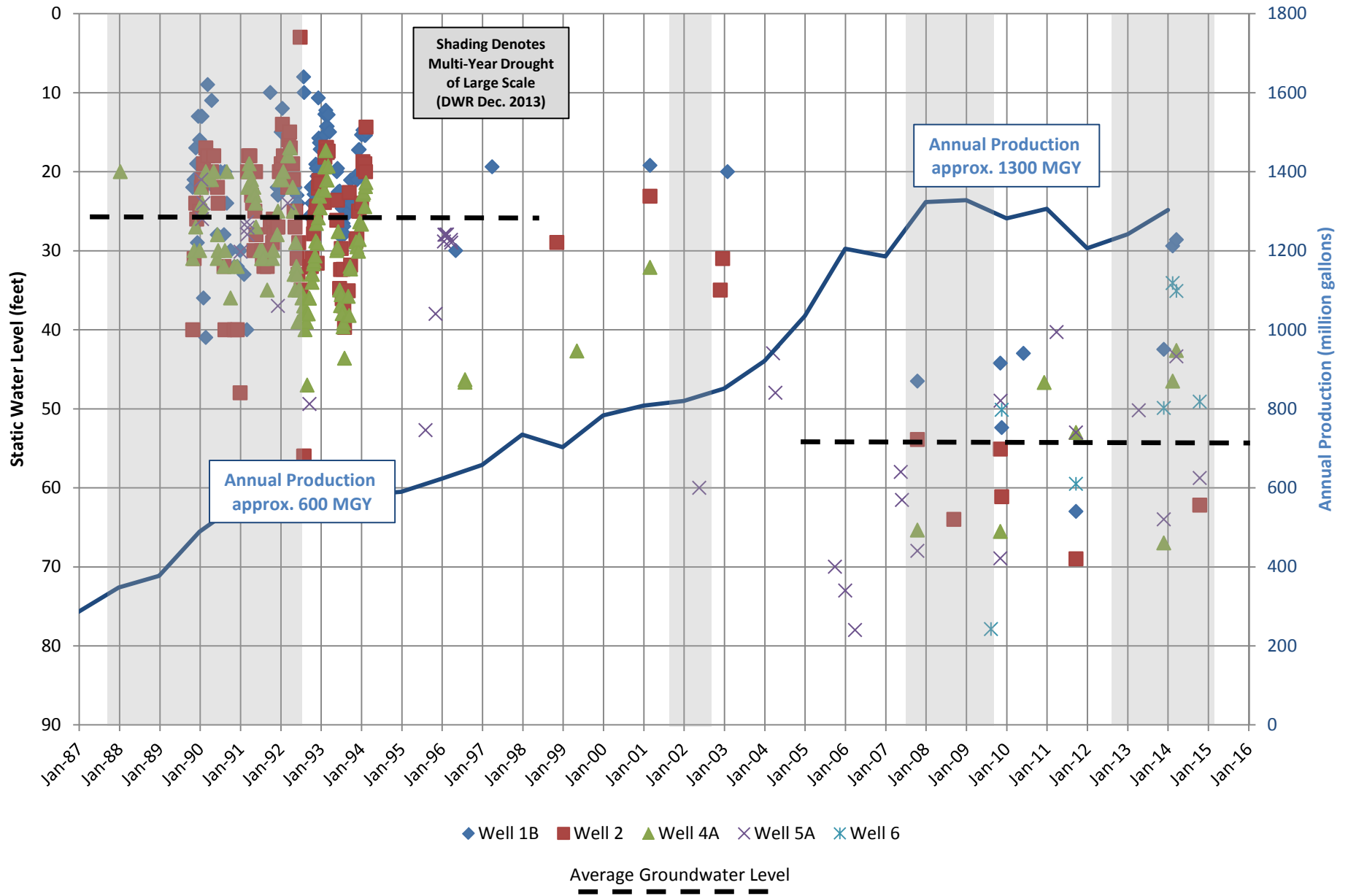
6.10 Climate Change Impacts to Supply

The District's supply wells are the sole source of water for the TODB. The wells were able to supply the TODB at the height of the 2012-2015 drought without impacts to the aquifer. Groundwater levels have been shown to fully recover.

The District's water supply does not come from snowmelt, is not diverted from the Delta, is not a coastal aquifer, is not subject to invasive species management, and has always been able to meet the TODB's water demand.

The District's water supply reliability is detailed in Chapter 7.







Chapter 7 - Water Supply Reliability Assessment

7.1 Constraints on Water Sources

LSCE conducted a review of the District's water supply reliability and produced a memorandum presenting *Supporting Analysis on Groundwater Conditions*⁹ on June 20, 2016 which was prepared to comply with the June 2016 State of California Emergency Drought Regulations (see **Appendix H**). This memorandum concludes that there are no restrictions preventing the District from its ability to pump water from the aquifer to meet current and anticipated demand.

The District's water supply limitations are due to the number and operating condition of the District's wells. All wells, with the exception of Well 5A, are able to operate without limitations to produce sufficient water supply that exceeds current demand. Well 5A has had increasing levels of TDS, which has constrained its use. The District has plans to complete construction of a new well to replace Well 5A as noted in Chapter 6, which will remove this operating constraint.

7.2 Reliability by Type of Year

In the context of drought planning, this section describes reliability of the water supply and vulnerability to seasonal or climatic shortage for the following water-year types:

- **Average water year:** *A year, or an averaged range of years, that most closely represents the average water supply available to the agency. The UWMP Act uses the term "normal" conditions.*
- **Single dry water year:** *The single-dry year is the year that represents the lowest water supply available to the agency.*
- **Multiple dry water years:** *The multiple dry year period is the period that represents the lowest average water supply availability to the agency for a consecutive multiple year period (three years or more). This is generally considered to be the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903. DWR has interpreted "multiple dry years" to mean three dry years, however, water agencies may project their water supplies for a longer time period.*

The District determined the base years as listed in **Table 7-1**. The average/normal base year is the highest water usage year on record. The dry years are based on the 2012-2015 drought. Seasonal

⁹ June 20, 2016, Supporting Analysis on Groundwater Conditions 2016 Self-Certified Water Conservation Standard, Luhdorff & Scalmanini Consulting Engineers

fluctuations observed in groundwater levels do not result in any considerable loss of production for the District. Furthermore, the District has always been able to pump 100% of its groundwater supply during previous multiple-dry years.

Table 7-1 summarizes the effects water year-types would have on water supply and groundwater production. Annual groundwater production varies depending on the water demand. The maximum production of record was 1,328 MGY in 2008. 2015 was the height of a period of multiple-dry years and the District had access to 100% of its groundwater supplies, though usage was curtailed due to drought restrictions.

Table 7-1. Retail: Basis of Water Year Data

Table 7-1 Retail: Basis of Water Year Data			
Year Type	Base Year <i>If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year	2008 (recorded maximum usage)	1328	100%
Single-Dry Year	2007	1328	100%
Multiple-Dry Years 1st Year	2012	1328	100%
Multiple-Dry Years 2nd Year	2013	1328	100%
Multiple-Dry Years 3rd Year	2014	1328	100%
Multiple-Dry Years 4th Year <i>Optional</i>	2015	1328	100%

7.3 Supply and Demand Assessment

The water supply and demand assessment shall compare the total water supply sources with the total projected water use over the next 20 years for normal, single-dry and multiple-dry years. **Tables 7-2, 7-3, and 7-4** provide the assessment of supply versus demand for each water year type. The water supply is based on operating all wells for 12 hours per day, 365 days per year, which the wells are capable for supplying. However, the wells will only be operated to the extent that meets the TODB's demand and thus will pump less than what is possible.

Table 7-2. Retail: Normal Year Supply and Demand Comparison

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals (autofill from Table 6-9)	2,500	2,500	2,500	2,500	2,500
Demand totals (autofill from Table 4-3)	1,369	1,369	1,369	1,651	1,993
Difference	1,131	1,131	1,131	849	507

Table 7-3. Retail: Single Dry Year Supply and Demand Comparison

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	2,500	2,500	2,500	2,500	2,500
Demand totals	1,369	1,369	1,369	1,651	1,993
Difference	1,131	1,131	1,131	849	507

Table 7-4. Retail: Multiple Dry Year Supply and Demand Comparison

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	2,500	2,500	2,500	2,500	2,500
	Demand totals	1,369	1,369	1,369	1,651	1,993
	Difference	1,131	1,131	1,131	849	507
Second year	Supply totals	2,500	2,500	2,500	2,500	2,500
	Demand totals	1,369	1,369	1,369	1,651	1,993
	Difference	1,131	1,131	1,131	849	507
Third year	Supply totals	2,500	2,500	2,500	2,500	2,500
	Demand totals	1,369	1,369	1,369	1,651	1,993
	Difference	1,131	1,131	1,131	849	507

7.4 Regional Supply Reliability

All TODB water is produced locally, therefore no regional supplies are required, nor are they available. Groundwater is produced in a sustainable fashion. The District participates in regional planning (CASGEM, SGMA, etc.) and complies with the provisions set to ensure reliability of its water source.

Chapter 8 - Water Shortage Contingency Planning

8.1 Stages of Action

CWC Section 10632 (a) requires stages of action to be undertaken by the water supplier in response to water supply shortages, including up to a 50-percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

The District will implement a four-stage action in response to water supply shortages to comply with State requirements (see **Table 8-1**). The stages will be implemented during water supply shortages, or regional drought conditions that may not be directly influencing the District's water supplies. The stage determination and declaration of a water supply shortage will be made by the TODB Board of Directors.

Stage I – This stage is part of an ongoing public information campaign encouraging voluntary water conservation. The TODB issued a resolution for voluntary water use in *Resolution 2014-11 – Voluntary Water Reduction* (Appendix C.2). There is little to no water shortage during Stage I. Although Stage I is ongoing, customers are reminded when a regional single-year drought is occurring, or when the District has a redundant back-up well offline for repairs, which makes the overall supply system more vulnerable to shortages.

Stage II – This stage would be initiated during moderate water shortage (of up to 15%) and would be the first stage where mandatory conservation and water use prohibitions are enforced. Failure of two groundwater supply wells could cause a moderate reduction in water supply resulting in implementation of Stage II. Stage II would also be implemented during a regional severe drought where water conservation is mandatory but impacts to the District's groundwater supply wells are negligible or non-existent. During Stage II the Board of Directors will declare prohibitions on water use, in accordance with the TODB *Ordinance No. 25 Establishing Emergency Drought Regulations* (Appendix C.3). This stage is characteristic of the 2012-2015 drought, which was severe throughout the State but had no immediate effects on the TODB's groundwater supply.

Stage III – This stage would be initiated during a severe water shortage (15 to 35%), which could be caused by a catastrophic failure of up to three groundwater supply wells. During Stage III, the Board of Directors would adopt a new ordinance providing authority for the General Manager to implement additional prohibitions and consumption reduction methods that would include water rationing if other consumption reduction methods are not effective at reducing demand.

Stage IV – This stage would be initiated during a critical water shortage (35 to 50%), which could be caused by a catastrophic failure of more than three groundwater supply wells. All steps taken in the prior stages would be intensified and production would be monitored daily for compliance with necessary reductions. Residents would be under water rationing. The TODB would be in an emergency state to repair and bring online water supply wells.

Table 8-1. Retail: Stages of Water Storage Contingency Plan

Table 8-1 Retail Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction ¹ <i>Numerical value as a percent</i>	Water Supply Condition <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
I - Voluntary	0-5%	Normal to Minimum - Ex: loss of a redundant well supply
II - Mandatory Conservation	0-15%	Moderate - Ex: Severe drought <u>or</u> catastrophic loss of 2 wells
III - Rationing	15-35%	Severe to Critical - Ex: Catastrophic loss of 3 wells
IV - Intense Rationing	35-50%	Severe to Critical - Ex: Catastrophic loss of 3 wells or more wells
¹ One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		

8.2 Prohibitions on End Uses

CWC Section 10632 (d) requires water suppliers to implement mandatory prohibitions against specific water use practices that may be considered excessive during water shortages. If drought conditions or water shortages warrant mandatory prohibitions (Stage II) the TODB will implement the current water shortage emergency response plan, *Ordinance No. 25 Establishing Emergency Drought Regulations (Appendix C.3)*. Further mandatory prohibitions will be implemented if warranted based on Stage III or Stage IV conditions. **Table 8-2** identifies prohibitions that would be enforced during a water shortage emergency.

Table 8-2. Retail: Restrictions and Prohibitions on End Uses

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
Add additional rows as needed			
II, III, IV	Landscape - Restrict or prohibit runoff from landscape irrigation	Excessive outdoor watering (Causing runoff to non-irrigated areas)	Yes
II, III, IV	Other - Require automatic shut of hoses	Use of hose without a shut-off nozzle for vehicle washing	Yes
II, III, IV	Other - Prohibit use of potable water for washing hard surfaces	Application of water to driveways or sidewalks	Yes
II, III, IV	Water Features - Restrict water use for decorative water features, such as fountains	Use of water in non-circulating fountain or water feature	Yes
II, III, IV	Landscape - Limit landscape irrigation to specific days	Outdoor irrigation beyond the allowed watering schedule	Yes
III, IV	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Uncorrected plumbing leaks	Yes
III, IV	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Washing cars	Yes
III, IV	Landscape - Prohibit all landscape irrigation	Watering lawns/landscapes or filling outdoor water features	Yes

8.3 Penalties, Charges, Other Enforcement of Prohibitions

CWC Section 10632 (f) requires a water supplier to penalize or charge for excessive use, where applicable. In accordance with the TODB Ordinance No. 25, when a water shortage emergency is declared, the General Manager may issue a Notice of Violation to any customer that fails to comply with the conditions of the ordinance. After one notice has been issued further violations shall be punishable by a fine of: \$25 for a first violation, \$50 for a second violation, \$100 for a third violation, and \$500 for a fourth violation and any subsequent violation thereafter. Furthermore, each day upon which any condition of the ordinance is violated constitutes a separate violation.

During severe and critical water shortages (Stages III and IV), there will be additional charges applied for excessive water use. During these water shortages, the General Manager may take further actions if violations continue after the one written warning, such as installing a flow-restricting device on the service line, or termination of service for repeated violations of unauthorized water use.

8.4 Consumption Reduction Methods

CWC Section 10632 (e) requires the water supplier to implement consumption-reduction methods during the most severe stages of water shortage that are capable of reducing water use by up to

50%. The TODB would implement the water consumption–reduction methods shown on **Table 8-4**, below. Some of the methods are on-going and are part of the TODB water conservation efforts addressed in the Demand Management Measures.

Table 8-3. Retail: Stages of Water Shortage Contingency Plan – Consumption Reduction Methods

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>
<i>Add additional rows as needed</i>		
All Stages	Other	Demand Reduction Program
All Stages	Provide Rebates on Plumbing Fixtures and Devices	Water conservation kits
All Stages	Expand Public Information Campaign	Education programs
All Stages	Other	Voluntary rationing
II, III, IV	Other	Mandatory prohibitions
III, IV	Other	Apply flow restrictions to customers
III, IV	Implement or Modify Drought Rate Structure or Surcharge	Water shortage pricing
II, III, IV	Implement or Modify Drought Rate Structure or Surcharge	Apply penalties for excessive water use
III, IV	Other	Restrict water use for only priority uses
IV	Moratorium or Net Zero Demand Increase on New Connections	Mandatory water rationing, per capita allotment

8.5 Determining Water Shortage Reductions

CWC Section 16032 (i) requires the water supplier to develop a mechanism for determining actual reductions in water use when implementing the urban water supply shortage contingency plan. Water production is measured daily at the water treatment plants that supply water to the system. Metered customers are recorded monthly. However, the District is currently conducting a program to install meters on all service connection to be completed in 2017. The new meters will be able to track water usage in real time. Exceptionally high usage from customers are identified and investigated for potential water loss or over-use. In that event the customers would be notified and the problem remedied.

8.6 Revenue and Expenditure Impacts

CWC Section 10632 (f) requires an analysis of the impacts of consumption reduction on the revenues and expenditures of the water supplier. These impacts are evaluated during rate studies conducted by the District to ensure revenue meets expenditures. In the event of an emergency, the District will explore options to recover lost revenue due to consumption reduction, including implementation of surcharges.

8.7 Resolution or Ordinance

A copy of the TODB's Draft Water Shortage Contingency Resolution and Water Shortage Contingency Plan, as well as current water reduction ordinances and resolutions, are in **Appendix F**.

8.8 Catastrophic Supply Interruption

In the event of catastrophic reduction in water supplies, the District would implement emergency preparedness plans, depending on the cause and severity of the water shortage. CWC Section 10632 (c) requires certain actions to be undertaken by the water supplier during a catastrophic interruption in water supplies. A catastrophic event resulting in water shortage would be any event, either natural or man-made, with varying levels of severity to the water supply conditions. Examples include, but are not limited to, a regional power outage, an earthquake, or other disasters.

The TODB has in place an Emergency Operations Plan that would be implemented by the District staff in the event of a catastrophic water shortage. The District has equipped its facilities with standby emergency generators that would be operated if the catastrophic event involved loss of power. Both of the water treatment plants and booster stations are equipped with permanent emergency generators and automatic transfer switches. The District owns portable generators that can be used to operate the groundwater pumping stations. If there is catastrophic rupturing of pipelines, during an earthquake for example, the emergency operations procedures would be followed to isolate the damaged sections, notify customers, and immediately repair the damage.

8.9 Minimum Supply Next Three Years

CWC Section 10632 (b) requires the UWMP to include an estimate of the minimum water supply in the next three years based on the driest three-year historic sequence for the agency's water supply. The most recent exceptionally dry four-year historic sequence is noted above in **Table 7-1**. Throughout the TODB's history, there have never been impacts to supply caused by droughts. Therefore, there is no limitation on water supply in the next three years associated with drought. **Table 8-4** summarizes the estimated minimum water supply in the next three years based on the next three years being the driest three-year historical sequence.

Table 8-4. Retail: Three-Year Minimum Water Supply

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	1,328	1,328	1,328

Chapter 9 - Demand Management Measures

9.1 Demand Management Measures for Retail Agencies

9.1.1 Water Waste Prevention Ordinances

On September 3, 2014, TODB enacted an ordinance on waste prohibition and assess fines for repeat offenders (Ordinance No. 25 Establishing Emergency Drought Regulations, see **Appendix F**). This ordinance was since updated in 2016 with the Drought Regulation Ordinance No. 2016-27.

The TODB has also established the Water Shortage Contingency Plan in this 2015 UWMP that defines further prohibitions to be implemented in the event of a water shortage emergency affecting the District's supply wells by up to a 50% reduction.

If reductions of system water use are needed, the District will approach Contra Costa County to consider implementation of a landscape ordinance based on the State issued Model Water Efficient Landscape Ordinance (MWELO) that would require landscape permit, plan check, or design review for new and rehabilitated landscape areas that exceed a minimum square footage. The Town does not have the authority to do complete this itself, therefore a County Ordinance and implementation is required.

In June 2016, during a revision of the Emergency Drought Regulations, the TODB petitioned for a self-certified conservation standard of 0% to which was conducted in conformance with the State of California Water Supply Reliability Certification and Data Submission Form and was supported by a technical evaluation of groundwater conditions by LSCE (**Appendix H**). While the TODB currently has a 0% water conservation standard with regard to the Emergency Drought Regulations, TODB has also adopted a voluntary water conservation goal of 15%-20% for the community.

9.1.2 Metering

The TODB's program for metering with commodity rates is implemented for commercial and landscape accounts. The TODB requires all new services be installed with a meter. The TODB began retrofitting existing residential meters in 2008. Currently, approximately 3,738 services are un-metered (64% of all services). The TODB's objective is to implement metering with commodity rates of all services, starting with a meter retrofit program that is currently underway and will be completed by the end of 2017. The metering with commodity rates consists of: require meters on all services, establish a program to retrofit meters on unmetered services, read meters and bill on volume use, bill bi-monthly or more frequently, establish a program to test, repair and/or replace meters, and consider splitting mixed-use commercial and landscape meters to have a dedicated landscape meter.

9.1.3 Conservation Pricing

This measure relates with Section 9.1.2 (metering with commodity rates) and focuses on setting a rate structure with a price signal to customers to use water efficiently. In general, conservation-pricing models involve setting a commodity rate structure such that a significant portion of the total revenue comes from the volumetric billing as compared to the fixed rate charges. However, each agency is unique in how rates are set and professional studies are required to determine the rate case most applicable for each agency. The TODB will review the rate case and will implement a conservation pricing element after the metering retrofit program is completed, by 2017. It is unknown if the commodity rate structure will be a uniform rate or a tiered rate structure.

9.1.4 Public Education and Outreach

The TODB has an ongoing public information program to promote water conservation by informing customers about the needs and benefits of water conservation. The public information program generally consists of the following methods for disseminating information: providing customers with bill inserts, using paid public advertising, providing information via a link on the TODB's website (www.todb.ca.gov), providing year-to-year comparisons in customer water bills (for those that are metered), sending out a newsletter twice per year, and a portable digital message board that is moved throughout town to display water conservation messages and information. The digital message board is used to display reminders about conservation and setting irrigation timers during summer months, and reminders about water use prohibitions during droughts or water shortages. Messaging and public information will need to be continually updated based on public input and staff training in water conservation techniques. With the retrofit of all un-metered connections, the TODB will improve the targeted messaging by including information and comparison of water use for each resident.

The District participates in the TODB's annual Earth Day Fair by staffing a booth for outreach to local teachers and students regarding the water and wastewater services provided by the District. Pamphlets and other materials about water supply and water saving tips are distributed. The District provides additional information on request to teachers and school administrators to help them create educational programs regarding water conservation. Additionally, the District makes staff available on request for school tours of its wastewater treatment plant.

The TODB makes available District staff to provide residents with free home water use auditing at the request of customers. With completion of the water meter project in 2017, the top 5% of water users can be identified and personally offered this free service to help them reduce usage. This audit includes leak detection assistance, conservation survey of home appliances, recommending repairs, and water use efficiency techniques for landscape practices and irrigation timers. During a home survey, the TODB will identify toilets, washing machines and plumbing fixture replacements that could reduce household water use and provide residents with estimated water savings. The TODB also discusses use of weather-based irrigation controllers and how to program irrigation timers. The District will compose an inspection list to complete this task.

9.1.5 Programs to Assess and Manage Distribution System Real Loss

Currently, the District visually monitors the system with a focus on areas with older pipelines and immediately repairs any leaks that are identified. Current estimates of water system unaccounted losses range from 7-12% of total production, which are attributed to pipe breaks, pipe leakage, and flushing programs. Whenever pipe leaks are identified and repaired, the District documents and keeps a record of the pipe material, condition, and location to identify areas of higher failure probability, which are used in developing and updating the pipe replacement programs. The District will expand the system water audit capabilities after the meter retrofit program, which is planned to be completed by mid-2017. Several pipe replacement programs are planned by 2020 to improve fireflows and reduce leakage.

9.1.6 Water Conservation Program Coordination and Staffing Support

The TODB has designated a staff member to be responsible for coordinating water conservation program management, tracking, planning, and reporting on the DMM implementation. The designated water conservation coordinator is the Water and Wastewater Manager. The water conservation coordinator works with other staff, customers, and stakeholders to implement the water conservation program.

9.1.7 Other Demand Management Measures

Upon completion of the water metering project, individual customer usage can be tracked more frequently. This allows the District and customers to view their usage and to receive an alert if unusually high usage due to leaks, etc. is detected at their service connection thereby reducing the loss of water due to unknown circumstances.

9.2 Implementation over the Past Five Years

9.2.1 Water Waste Prevention Ordinances

On September 3, 2014, the TODB enacted an ordinance on waste prohibition and assess fines for repeat offenders (Ordinance No. 25 Establishing Emergency Drought Regulations, see **Appendix F-3**).

9.2.2 Metering

Implementation of adding meters to all service connections is currently taking place and will be completed by the end of 2017.

9.2.3 Conservation Pricing

A water rate study was completed in 2016-17 and considered conservation pricing. The current rates are based on this study. The next rate study is schedule for 2020-21.

9.2.4 Public Education and Outreach

Upon request of the customers, the TODB conducts a free home water use audit to assist with identifying potential water saving items. Results are entered into the customer file.

The TODB continues to update customers on water conservation activities and improve targeted messaging via the TODB website and the other forms discussed above.

9.2.5 Programs to Assess and Manage Distribution System Real Loss

The District monitors areas of high leak frequency and update the pipe replacement program as warranted by leak frequency and cause. Update water auditing capability after all services are retrofitted with meters.

9.2.6 Water Conservation Program Coordination and Staffing Support

The water conservation coordinator works with other staff, customers and stakeholders to implement the water conservation program.

9.2.7 Other Demand Management Measures

District staff routinely patrol the service area. If staff notice water runoff from private property, the owner is approached to help correct the problem. This reduces excessive water use, particularly during the high demand periods of summer.

9.3 Planned Implementation to Achieve Water Use Targets

9.3.1 Water Waste Prevention Ordinances

During a water shortage emergency, waste prohibitions are declared by the Board of Directors and administered, implemented, and enforced by the General Manager. Water savings would be assessed during a water shortage emergency based on tracking total production and individual metered accounts. Implementing prohibitions will save water from 0-50% when the prohibitions are enforced during a water shortage emergency.

9.3.2 Metering

Implementation of adding meters to all service connections is currently taking place and will be completed by the end of 2017.

9.3.3 Conservation Pricing

The effectiveness of this DMM will be evaluated during the rate study and then assessed after it is implemented by measuring water savings before and after the meter retrofit and rate structure changes. The next rate study will occur in 2020-21 and will include analysis of customer meter usage.

9.3.4 Public Education and Outreach

The TODB will hold workshops with local school administration and teaching staff to develop grade-appropriate material.

9.3.5 Programs to Assess and Manage Distribution System Real Loss

The District monitors areas of high leak frequency and update the pipe replacement program as warranted by leak frequency and cause. Update water auditing capability after all services are retrofitted with meters.

9.3.6 Water Conservation Program Coordination and Staffing Support

The water conservation coordinator works with other staff, customers and stakeholders to implement the water conservation program.

9.3.7 Other Demand Management Measures

The District will continue to informally patrol the service area to find and address water runoff from private property to reduce unnecessary water use, particularly during the summer months.

Chapter 10 - Plan Adoption, Submittal, and Implementation

10.1 Inclusion of All 2015 Data

This 2015 UWMP has been completed utilizing all data available through the end of the 2015 calendar year.

10.2 Notice of Public Hearing

The water districts, cities, and counties listed in **Table 10-1** were sent a 60-day notice of the TODB's intent to update its UWMP in 2015. Additionally, these entities were sent noticed of public hearings for comment. Public noticed was made in local newspapers and on the TODB's website.

The public hearing was used to discuss the present and proposed future measures, programs, and policies in this 2015 UWMP to help achieve the water use reductions and publicly discuss the per-capita water use reduction goals.

Table 10-1. Retail: Notification to Cities and Counties

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Contra Costa Water District	<input type="checkbox"/>	<input checked="" type="checkbox"/>
East Contra Costa Irrigation District	<input type="checkbox"/>	<input checked="" type="checkbox"/>
City of Brentwood	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Diablo Water District	<input type="checkbox"/>	<input checked="" type="checkbox"/>
General Public	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
Contra Costa County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

10.3 Public Hearing and Adoption

For this 2015 UWMP, the TODB will notify applicable agencies listed in **Table 10-1**, at least 60 days in advance, that a public hearing will be held to review and consider any changes to the draft 2015 UWMP. The TODB intends to adopt this 2015 UWMP following the public hearing. The

final 2015 UWMP will include a copy of the Public Hearing and Board resolution in **Appendix B** (to be included after the public hearing and adoption).

The public hearing will be used to discuss the present and proposed future measures, programs, and policies in the UWMP to help achieve the water use reductions and publicly discuss the per-capita water use reduction goals.

Once the 2015 UWMP is adopted, the Plan will be implemented. In general, the implementation of the elements of this Plan involves continued water supply monitoring (groundwater levels and quality), monitoring of water demand, enacting water shortage contingency plans when necessary in response to water shortages, and implementing water conservation and tracking demand reduction through the strategies and schedules described for DMMs.

10.4 Plan Submittal

10.4.1 Submitting a UWMP to DWR

This 2015 UWMP, within 30 days of adoption by the TODB, will be submitted to DWR for review and determination if it addresses the requirements of the CWC.

10.4.2 Electronic Data Submittal

This 2015 UWMP will be submitted to DWR via the WUEdata online submittal tool.

10.4.3 Submitting a UWMP to the California State Library

This 2015 UWMP will be submitted to the California State Library via an electronic copy on CD within 30 days of adoption by the TODB and approval by DWR. The address of the California State Library is:

California State Library
Government Publications Section
P.O. Box 942837
Sacramento, CA 94237-0001
Attention: Coordinator, Urban Water Management Plans

10.4.4 Submitting a UWMP to Cities and Counties

The District provides water only to the TODB. No other cities or counties receive water from the District. This 2015 UWMP will be available for download any interested parties at the TODB's website.

10.5 Public Availability

The UWMP will be made available for viewing by the public on the TODB's website. Additionally, a hard copy will be available in the District's office for public viewing during normal business hours.

10.6 Amending an Adopted UWMP

If the TODB determines that this 2015 UWMP needs to be amended, all steps for notification, public hearings, adoption, and submittal outlined in **Chapter 10** will be followed.

Limitations

Luhdorff & Scalmanini prepared this document solely for the Town of Discovery Bay in accordance with professional standards at the time the services were performed and in accordance with the contract between the Town of Discovery Bay and Luhdorff & Scalmanini dated June 1, 2016. This document is governed by the specific scope of work authorized by the Town of Discovery Bay; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by the Town of Discovery Bay and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Appendix A

UWMP Checklist

Checklist Arranged by Water Code Section

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location (Optional Column for Agency Use)
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	5-8
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	5-8
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	5-8
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	5-10
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	N/A
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	10-1
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	N/A
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	5-10
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	2-1
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	2-2

10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	7-4
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	10-1
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	10-1 10-2
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	3-1
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	3-3
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	3-4 3-5
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	3-4
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	3-4
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	6-14
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	6-1
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	6-4
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	6-1
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	6-4
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	6-5
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of	System Supplies	Section 6.2.4	6-5

	groundwater pumped by the urban water supplier for the past five years			6-5
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	6-1 6-14
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	7-1
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	7-1
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	7-1
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	6-13
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	4-1
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	4-3
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	9-3 9-4
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	N/A
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	6-13
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	6-13
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	N/A
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use	System Supplies	Section 2.5.1	2-2

	projections from that source.			
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	N/A
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	4-4
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	8-1
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	8-5
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	8-5
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	8-2
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	8-3
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	8-3
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	8-5
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	8-5
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	8-4
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	6-6
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of	System Supplies (Recycled Water)	Section 6.5.2	6-7

	wastewater collected and treated and the methods of wastewater disposal.			
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	6-7
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	6-8 6-9
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	6-9
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	6-9
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	6-12
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	6-12
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	7-1
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	7-2
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	10-2
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	10-1
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	10-1 10-2

	about the plan.			
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	10-1
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	10-1
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	10-2
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	10-2
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	10-2
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	10-2

Checklist Arranged by Subject

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location (Optional Column for Agency Use)
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	2-1
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	2-2
10642	Provide supporting documentation that the water supplier has encouraged active	Plan Preparation	Section 2.5.2	2-3

	involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.			
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	3-1
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	3-3
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	3-4
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	3-4
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	3-4 3-5
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	4-1
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	4-3
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	4-4
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	5-8
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	5-8
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	5-8
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	5-10
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	N/A
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted	Baselines and Targets	Section 5.1	N/A

	water use reductions.			
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	5-10
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	6-14
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	6-1
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	6-4
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	6-1
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	6-4
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	6-5
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.4	6-5
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	6-1 6-14
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	6-13
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	6-13
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	6-13
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	2-2
10631(j)	Wholesale suppliers will include	System Supplies	Section 2.5.1	N/A

	documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.			N/A
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	6-6
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	6-7
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	6-7
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	6-8 6-9
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	6-9
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	6-9
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	6-12
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	6-12
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	7-4
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	7-1
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	7-1
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that	Water Supply Reliability Assessment	Section 7.1	7-1

	source.			
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	7-1
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	7-2
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	8-1
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	8-5
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	8-5
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	8-2
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	8-3
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	8-3
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	8-5
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	8-5
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	8-4
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	9-3 9-4
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in	Demand Management	Sections 9.1 and 9.3	N/A

	code, their distribution system asset management program, and supplier assistance program.	Measures		N/A
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	N/A
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	10-1
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	10-1
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	10-1 10-2
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	10-2
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	10-1 10-2
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	10-1
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	10-1
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	10-2
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	10-2
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	10-2

10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	10-2
-------	---	--	--------------	------

Appendix B
DWR Data Tables

Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015 (MG)
CA 0710009	Town of Discovery Bay Community Services District	5,947	852
TOTAL		5,947	852
NOTES:			

Table 2-2: Plan Identification

Select Only One	Type of Plan	Name of RUWMP or Regional Alliance <i>if applicable</i>
<input checked="" type="checkbox"/>	Individual UWMP	
	<input type="checkbox"/> Water Supplier is also a member of a RUWMP	
	<input type="checkbox"/> Water Supplier is also a member of a Regional Alliance	
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)	
NOTES:		

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables Are in Calendar Years
<input type="checkbox"/>	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	MG
NOTES:	

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name <i>(Add additional rows as needed)</i>
N/A
NOTES:

Table 3-1 Retail: Population - Current and Projected

Population Served	2015	2020	2025	2030	2035	2040(opt)
	14,608	18,500	18,500	18,500	22,374	27,059

NOTES: Projected populations are based on proposed new development construction.

Table 4-1 Retail: Demands for Potable and Raw Water - Actual

Use Type (Add additional rows as needed)	2015 Actual		
<i>Drop down list</i> May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Other	Residential	Drinking Water	638
Commercial		Drinking Water	34
Institutional/Governmental	Included in Commercial	Drinking Water	
Landscape		Drinking Water	105
Losses		Drinking Water	91
TOTAL			867
NOTES:			

Table 4-2 Retail: Demands for Potable and Raw Water - Projected

Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use <i>Report To the Extent that Records are Available</i>				
<u>Drop down list</u> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>		2020	2025	2030	2035	2040-opt
Other	Residential	1,009	1,009	1,009	1,221	1,476
Commercial		54	54	54	65	79
Institutional/Governmental	Included in Commercial					
Landscape		166	166	166	200	242
Losses		143	143	143	173	210
TOTAL		1,372	1,372	1,372	1,660	2,007
NOTES:						

Table 4-3 Retail: Total Water Demands

	2015	2020	2025	2030	2035	2040 (opt)
Potable and Raw Water <i>From</i> <i>Tables 4-1 and 4-2</i>	867	1,372	1,372	1,372	1,660	2,007
Recycled Water Demand* <i>From</i> <i>Table 6-4</i>	0	0	0	0	0	0
TOTAL WATER DEMAND	867	1,372	1,372	1,372	1,660	2,007

**Recycled water demand fields will be blank until Table 6-4 is complete.*

NOTES:

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
01/2015	90.6
* Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.	
NOTES:	

Table 4-5 Retail Only: Inclusion in Water Use Projections

Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i>	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i>	Yes
NOTES:	

Table 5-1 Baselines and Targets Summary*Retail Agency or Regional Alliance Only*

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	2001	2010	261	235	209
5 Year	2003	2007	264		

*All values are in Gallons per Capita per Day (GPCD)

NOTES:

Table 5-2: 2015 Compliance*Retail Agency or Regional Alliance Only*

Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD					2015 GPCD* (Adjusted if applicable)	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Enter "0" if no adjustment is made						
		Methodology 8						
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
157	235	0	0	0	0	157	157	Yes

**All values are in Gallons per Capita per Day (GPCD)*

NOTES:

Table 6-1 Retail: Groundwater Volume Pumped

<input type="checkbox"/>	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	Tracy Subbasin of the San Joaquin Valley Groundwater Basin	1173	1218	1286	1123	851.6
TOTAL		1,173	1,218	1,286	1,123	852
NOTES:						

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
<input type="checkbox"/>	There is no wastewater collection system. The supplier will not complete the table below.					
100%	Percentage of 2015 service area covered by wastewater collection system <i>(optional)</i>					
100%	Percentage of 2015 service area population covered by wastewater collection system <i>(optional)</i>					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i> <i>Drop Down List</i>
<i>Add additional rows as needed</i>						
Town of Discovery Bay Community Services District	Estimated	475	Town of Discovery Bay Community Services District	WWTP No. 1 and No. 2	Yes	Yes
Total Wastewater Collected from Service		475				
NOTES:						

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015

<input type="checkbox"/>		No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.								
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number <i>(optional)</i>	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level <i>Drop down list</i>	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
WWTP No. 1 and 2	Old River	Old River South of Highway 4 Bridge		River or creek outfall	No	Secondary, Undisinfected	475	475	0	0
Total							475	475	0	0
NOTES:										

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

<input checked="" type="checkbox"/>	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.							
Name of Agency Producing (Treating) the Recycled Water:		Town of Discovery Bay Community Services District						
Name of Agency Operating the Recycled Water Distribution System:		Town of Discovery Bay Community Services District						
Supplemental Water Added in 2015		No						
Source of 2015 Supplemental Water		N/A						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment <i>Drop down list</i>	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation			0	0	0	0	0	0
Landscape irrigation (excludes golf courses)			0	0	0	0	0	0
Golf course irrigation			0	0	0	0	0	0
Commercial use			0	0	0	0	0	0
Industrial use			0	0	0	0	0	0
Geothermal and other energy production			0	0	0	0	0	0
Seawater intrusion barrier			0	0	0	0	0	0
Recreational impoundment			0	0	0	0	0	0
Wetlands or wildlife habitat			0	0	0	0	0	0
Groundwater recharge (IPR)*			0	0	0	0	0	0
Surface water augmentation (IPR)*				0	0	0	0	0
Direct potable reuse				0	0	0	0	0
Other (Provide General Description)			0	0	0	0	0	0
		Total:	0	0	0	0	0	0
*IPR - Indirect Potable Reuse								
NOTES:								

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

<input checked="" type="checkbox"/>	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type	2010 Projection for 2015	2015 Actual Use
Agricultural irrigation	0	0
Landscape irrigation (excludes golf courses)	0	0
Golf course irrigation	0	0
Commercial use	0	0
Industrial use	0	0
Geothermal and other energy production	0	0
Seawater intrusion barrier	0	0
Recreational impoundment	0	0
Wetlands or wildlife habitat	0	0
Groundwater recharge (IPR)	0	0
Surface water augmentation (IPR)	0	0
Direct potable reuse	0	0
Other	0	0
Total		0
NOTES:		

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
<input checked="" type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
<i>Add additional rows as needed</i>			
Total			0
NOTES:			

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
<input type="checkbox"/>	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
<input type="checkbox"/>	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
Provide page location of narrative in the UWMP						
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to
	Drop Down List (y/n)	If Yes, Agency Name				
Add additional rows as needed						
Well 8	No		groundwater well	2019	All Year Types	0
NOTES: Well 8 is intended to replace Well 5A, which will be abandoned upon completion of Well 8.						

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
<div>Drop down list</div> <div>May use each category multiple times.</div> <div>These are the only water supply categories that will be recognized by the WUEdata online submittal tool</div>		Actual Volume	Water Quality <div>Drop Down List</div>	Total Right or Safe Yield <div>(optional)</div>
Add additional rows as needed				
Groundwater		852	Raw Water	
Total		852		0
NOTES:				

Table 6-9 Retail: Water Supplies — Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply Report To the Extent Practicable									
Drop down list <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		2020		2025		2030		2035		2040 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Groundwater		2,500		2,500		2,500		2,500		2,500	
	Total	2,500	0	2,500	0	2,500	0	2,500	0	2,500	0
NOTES:											

Table 7-1 Retail: Basis of Water Year Data

Year Type	Base Year <i>If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year	2008 (recorded maximum usage)	1328	100%
Single-Dry Year	2007	1328	100%
Multiple-Dry Years 1st Year	2012	1328	100%
Multiple-Dry Years 2nd Year	2013	1328	100%
Multiple-Dry Years 3rd Year	2014	1328	100%
Multiple-Dry Years 4th Year <i>Optional</i>	2015	1328	100%
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
NOTES:			

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals (autofill from Table 6-9)	2,500	2,500	2,500	2,500	2,500
Demand totals (autofill from Table 4-3)	1,372	1,372	1,372	1,660	2,007
Difference	1,128	1,128	1,128	840	493
NOTES:					

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison

	2020	2025	2030	2035	2040 (Opt)
Supply totals	2,500	2,500	2,500	2,500	2,500
Demand totals	1,369	1,369	1,369	1,651	1,993
Difference	1,131	1,131	1,131	849	507
NOTES:					

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison

		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	2,500	2,500	2,500	2,500	2,500
	Demand totals	1,369	1,369	1,369	1,651	1,993
	Difference	1,131	1,131	1,131	849	507
Second year	Supply totals	2,500	2,500	2,500	2,500	2,500
	Demand totals	1,369	1,369	1,369	1,651	1,993
	Difference	1,131	1,131	1,131	849	507
Third year	Supply totals	2,500	2,500	2,500	2,500	2,500
	Demand totals	1,369	1,369	1,369	1,651	1,993
	Difference	1,131	1,131	1,131	849	507

NOTES:

Table 8-1 Retail
Stages of Water Shortage Contingency Plan

Stage	Complete Both	
	Percent Supply Reduction ¹ <i>Numerical value as a percent</i>	Water Supply Condition <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
I - Voluntary	0-5%	Normal to Minimum - Ex: loss of a redundant well supply
II - Mandatory Conservation	0-15%	Moderate - Ex: Severe drought <u>or</u> catastrophic loss of 2 wells
III - Rationing	15-35%	Severe to Critical - Ex: Catastrophic loss of 3 wells
IV - Intense Rationing	35-50%	Severe to Critical - Ex: Catastrophic loss of 3 wells or more wells
¹ One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		
NOTES:		

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses

Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
<i>Add additional rows as needed</i>			
II, III, IV	Landscape - Restrict or prohibit runoff from landscape irrigation	Excessive outdoor watering (Causing runoff to non-irrigated areas)	Yes
II, III, IV	Other - Require automatic shut of hoses	Use of hose without a shut-off nozzle for vehicle washing	Yes
II, III, IV	Other - Prohibit use of potable water for washing hard surfaces	Application of water to driveways or sidewalks	Yes
II, III, IV	Water Features - Restrict water use for decorative water features, such as fountains	Use of water in non-circulating fountain or water feature	Yes
II, III, IV	Landscape - Limit landscape irrigation to specific days	Outdoor irrigation beyond the allowed watering schedule	Yes
III, IV	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Uncorrected plumbing leaks	Yes
III, IV	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Washing cars	Yes
III, IV	Landscape - Prohibit all landscape irrigation	Watering lawns/landscapes or filling outdoor water features	Yes
NOTES:			

Table 8-3 Retail Only:
Stages of Water Shortage Contingency Plan - Consumption Reduction Methods

Stage	Consumption Reduction Methods by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>
<i>Add additional rows as needed</i>		
All Stages	Other	Demand Reduction Program
All Stages	Provide Rebates on Plumbing Fixtures and Devices	Water conservation kits
All Stages	Expand Public Information Campaign	Education programs
All Stages	Other	Voluntary rationing
II, III, IV	Other	Mandatory prohibitions
III, IV	Other	Apply flow restrictions to customers
III, IV	Implement or Modify Drought Rate Structure or Surcharge	Water shortage pricing
II, III, IV	Implement or Modify Drought Rate Structure or Surcharge	Apply penalties for excessive water use
III, IV	Other	Restrict water use for only priority uses
IV	Moratorium or Net Zero Demand Increase on New Connections	Mandatory water rationing, per capita allotment
NOTES:		

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	1,328	1,328	1,328
NOTES:			

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Contra Costa Water District	<input type="checkbox"/>	<input checked="" type="checkbox"/>
East Contra Costa Irrigation District	<input type="checkbox"/>	<input checked="" type="checkbox"/>
City of Brentwood	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Diablo Water District	<input type="checkbox"/>	<input checked="" type="checkbox"/>
General Public	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
Contra Costa County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

Appendix C
Public Involvement Materials



TOWN OF DISCOVERY BAY

A COMMUNITY SERVICES DISTRICT



President – Bob Leete • Vice-President – Kevin Graves • Director – Bill Mayer • Director – Bill Pease • Director – Chris Steele

April 7, 2017

John Kopchik, Director
Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553

Subject: Town of Discovery Bay Community Services District's
2015 Urban Water Management Plan

Dear Mr. Kopchik:

This letter is to notify you that the Town of Discovery Bay Community Services District (TODB) is reviewing the Urban Water Management Plan (UWMP) and considering amendments to the plan that will be adopted in the 2015 UWMP. In accordance with the California Water Code, TODB is required to update and adopt an UWMP and submit a completed plan to the California Department of Water Resources every five years.

Although TODB did not adopt a 2015 UWMP by July 1, 2016, TODB plans to adopt a 2015 UWMP at a public hearing that will be held at least 60 days from the date of this letter. The date of the public hearing is tentatively scheduled for Wednesday, June 21, 2017 at 7:00 p.m. at the Community Center located at 1601 Discovery Bay Blvd., Discovery Bay, CA 94505. Publications will be made in advance of the public hearing.

If you have any questions or if you would like additional information, please contact Justin Shobe via email at jshobe@lsce.com or by phone at (530) 661-0109.

Sincerely,

Michael R. Davies
General Manager



TOWN OF DISCOVERY BAY

A COMMUNITY SERVICES DISTRICT



President – Bob Leete • Vice-President – Kevin Graves • Director – Bill Mayer • Director – Bill Pease • Director – Chris Steele

April 7, 2017

Rick Gilmore
General Manager
Byron Bethany Irrigation District
7995 Bruns Road
Byron, CA 94514-1625

Subject: Town of Discovery Bay Community Services District's
2015 Urban Water Management Plan

Dear Mr. Gilmore:

This letter is to notify you that the Town of Discovery Bay Community Services District (TODB) is reviewing the Urban Water Management Plan (UWMP) and considering amendments to the plan that will be adopted in the 2015 UWMP. In accordance with the California Water Code, TODB is required to update and adopt an UWMP and submit a completed plan to the California Department of Water Resources every five years.

Although TODB did not adopt a 2015 UWMP by July 1, 2016, TODB plans to adopt a 2015 UWMP at a public hearing that will be held at least 60 days from the date of this letter. The date of the public hearing is tentatively scheduled for Wednesday, June 21, 2017 at 7:00 p.m. at the Community Center located at 1601 Discovery Bay Blvd., Discovery Bay, CA 94505. Publications will be made in advance of the public hearing.

If you have any questions or if you would like additional information, please contact Justin Shobe via email at jshobe@lsce.com or by phone at (530) 661-0109.

Sincerely,

Michael R. Davies
General Manager



TOWN OF DISCOVERY BAY

A COMMUNITY SERVICES DISTRICT



President – Bob Leete • Vice-President – Kevin Graves • Director – Bill Mayer • Director – Bill Pease • Director – Chris Steele

April 7, 2017

Patricia Corey
General Manager
East Contra Costa Irrigation District
1711 Sellers Ave
Brentwood, CA 94513

Subject: Town of Discovery Bay Community Services District's
2015 Urban Water Management Plan

Dear Ms. Corey:

This letter is to notify you that the Town of Discovery Bay Community Services District (TODB) is reviewing the Urban Water Management Plan (UWMP) and considering amendments to the plan that will be adopted in the 2015 UWMP. In accordance with the California Water Code, TODB is required to update and adopt an UWMP and submit a completed plan to the California Department of Water Resources every five years.

Although TODB did not adopt a 2015 UWMP by July 1, 2016, TODB plans to adopt a 2015 UWMP at a public hearing that will be held at least 60 days from the date of this letter. The date of the public hearing is tentatively scheduled for Wednesday, June 21, 2017 at 7:00 p.m. at the Community Center located at 1601 Discovery Bay Blvd., Discovery Bay, CA 94505. Publications will be made in advance of the public hearing.

If you have any questions or if you would like additional information, please contact Justin Shobe via email at jshobe@lsce.com or by phone at (530) 661-0109.

Sincerely,

Michael R. Davies
General Manager



TOWN OF DISCOVERY BAY

A COMMUNITY SERVICES DISTRICT



President – Bob Leete • Vice-President – Kevin Graves • Director – Bill Mayer • Director – Bill Pease • Director – Chris Steele

April 7, 2017

Michael Yeraka
General Manager
Diablo Water District
87 Carol Lane
Oakley, CA 94561

Subject: Town of Discovery Bay Community Services District's
2015 Urban Water Management Plan

Dear Mr. Yeraka:

This letter is to notify you that the Town of Discovery Bay Community Services District (TODB) is reviewing the Urban Water Management Plan (UWMP) and considering amendments to the plan that will be adopted in the 2015 UWMP. In accordance with the California Water Code, TODB is required to update and adopt an UWMP and submit a completed plan to the California Department of Water Resources every five years.

Although TODB did not adopt a 2015 UWMP by July 1, 2016, TODB plans to adopt a 2015 UWMP at a public hearing that will be held at least 60 days from the date of this letter. The date of the public hearing is tentatively scheduled for Wednesday, June 21, 2017 at 7:00 p.m. at the Community Center located at 1601 Discovery Bay Blvd., Discovery Bay, CA 94505. Publications will be made in advance of the public hearing.

If you have any questions or if you would like additional information, please contact Justin Shobe via email at jshobe@lsce.com or by phone at (530) 661-0109.

Sincerely,

Michael R. Davies
General Manager



TOWN OF DISCOVERY BAY

A COMMUNITY SERVICES DISTRICT



President – Bob Leete • Vice-President – Kevin Graves • Director – Bill Mayer • Director – Bill Pease • Director – Chris Steele

April 7, 2017

Chris Ehlers
City of Brentwood – Public Works
2201 Elkins Way
Brentwood, CA 94513

Subject: Town of Discovery Bay Community Services District's
2015 Urban Water Management Plan

Dear Mr. Ehlers:

This letter is to notify you that the Town of Discovery Bay Community Services District (TODB) is reviewing the Urban Water Management Plan (UWMP) and considering amendments to the plan that will be adopted in the 2015 UWMP. In accordance with the California Water Code, TODB is required to update and adopt an UWMP and submit a completed plan to the California Department of Water Resources every five years.

Although TODB did not adopt a 2015 UWMP by July 1, 2016, TODB plans to adopt a 2015 UWMP at a public hearing that will be held at least 60 days from the date of this letter. The date of the public hearing is tentatively scheduled for Wednesday, June 21, 2017 at 7:00 p.m. at the Community Center located at 1601 Discovery Bay Blvd., Discovery Bay, CA 94505. Publications will be made in advance of the public hearing.

If you have any questions or if you would like additional information, please contact Justin Shobe via email at jshobe@lsce.com or by phone at (530) 661-0109.

Sincerely,

Michael R. Davies
General Manager

Legal Advertising and Public Notices

Legal Notice	Legal Notice	Legal Notice
NOTICE OF PUBLIC HEARING		
June 21, 2017		
<p>NOTICE IS HEREBY GIVEN that the Discovery Bay Community Services District will hold a public hearing on June 21, 2017, at 7:00 P.M. in the Discovery Bay Community Center, 1601 Discovery Bay Boulevard, Discovery Bay, California. The purpose of this public hearing is to consider a Resolution of the Board of Directors of the Discover Bay Community Services District approving the 2015 Urban Water Management Plan for submittal to the California Department of Water Resources as prepared by Staff and Luhdorff and Scalmanini Consulting Engineers.</p> <p>The draft 2015 Urban Water Management Plan is available for public inspection and review as of June 6, 2017 at www.todb.ca.gov or in person at the following location: Discovery Bay Community Services District office located at 1800 Willow Lake Road, Discovery Bay, CA 94505. Hours: Monday - Friday, 9:00 a.m. to 5:00 p.m.</p> <p>Written comments should be submitted to the Discovery Bay Community Service District to the attention of Michael Davies, no later than June 20, 2017, at 1800 Willow Lake Road Discovery Bay, CA 94505. During the hearing, oral comments may be limited to a reasonable length of time to allow all attendees to be heard. At the conclusion of the hearing, Discovery Bay Community Service District may decide to adopt the 2015 Urban Water Management Plan.</p> <p>ECT# 5967874 June 6, 13, 2017</p>		
		<p>FILED May 22, 2017 CONTRA COSTA COUNTY Joseph E. Canciamilla County Clerk CONTRA COSTA COUNTY By H Franklin, Deputy File No. F-0003206-00</p> <p>FICTITIOUS BUSINESS NAME STATEMENT Pursuant To Business and Professions Code Sections 17900-17930</p> <p>The name of the business; Tans Plus Med Spa located at 3000 Danville Blvd, Unit E, Alamo, Contra Costa County, CA 94507 is hereby registered by the following owner(s): Chirag Patel 16 Sugarloaf Terrace, Alamo, CA 94507 This business is conducted by: a Corporation Business commenced on May 22, 2017 Expires May 22, 2022</p>

Legal Advertising and Public Notices

Legal Notice

Legal Notice

Legal Notice

Legal Notice

NOTICE OF PUBLIC HEARING**June 21, 2017**

NOTICE IS HEREBY GIVEN that the Discovery Bay Community Services District will hold a public hearing on June 21, 2017, at 7:00 P.M. in the Discovery Bay Community Center, 1601 Discovery Bay Boulevard, Discovery Bay, California. The purpose of this public hearing is to consider a Resolution of the Board of Directors of the Discover Bay Community Services District approving the 2015 Urban Water Management Plan for submittal to the California Department of Water Resources as prepared by Staff and Luhdorff and Scalmanini Consulting Engineers.

The draft 2015 Urban Water Management Plan is available for public inspection and review as of June 6, 2017 at www.todb.ca.gov or in person at the following location:

Discovery Bay Community Services District office located at 1800 Willow Lake Road, Discovery Bay, CA 94505. Hours: Monday - Friday, 9:00 a.m. to 5:00 p.m.

Written comments should be submitted to the Discovery Bay Community Service District to the attention of Michael Davies, no later than June 20, 2017, at 1800 Willow Lake Road Discovery Bay, CA 94505. During the hearing, oral comments may be limited to a reasonable length of time to allow all attendees to be heard. At the conclusion of the hearing, Discovery Bay Community Service District may decide to adopt the 2015 Urban Water Management Plan.

ECT# 5967874 June 6, 13, 2017

Appendix D
2015 Adoption Resolution



**TOWN OF DISCOVERY BAY
COMMUNITY SERVICES DISTRICT**

RESOLUTION 2017-11

**A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE TOWN OF DISCOVERY BAY,
A CALIFORNIA COMMUNITY SERVICES DISTRICT,
CERTIFYING THE 2015 URBAN WATER MANAGEMENT PLAN**

WHEREAS, the Town of Discovery Bay Community Services District is a public agency in the state of California; and

WHEREAS, Pursuant to the Water Conservation Bill of 2009 SBX7-7 each urban water supplier that provides over 3,000 acre-feet of water annually, or serves more than 3,000 urban connections is required to assess the reliability of its water sources over the 20-year planning horizon; and

WHEREAS, the Town of Discovery Bay produces 3,000 acre-feet of water annually, and serves more than 3,000 urban connections and is therefore subject to the Bill; and

WHEREAS, the California Department of Water Resources ("DWR") requires an Urban Water Management Plan ("UWMP") every 5 years; and

WHEREAS, the 2010 UWMP was completed; and

WHEREAS, the engineering firm of Luhdorff and Scalmanini Consulting Engineers ("LSCE") has completed a draft 2015 UWMP to be consistent with DWR requirements and those requirements identified in the Water Code, Sections §10608– 10656; and

WHEREAS, Contra Costa County was notified by letter dated April 7, 2017, that a public hearing to adopt the draft 2015 UWMP will be held at least 60 days from the date of the letter; and

WHEREAS, a Notice of Public Hearing to adopt the draft 2015 UWMP on June 21, 2017 was published in the East County Times on June 6, 2017 and June 13, 2017, and that the draft 2015 UWMP was available for public inspection and review online and at the Town of Discovery Bay's main office; and

WHEREAS, no written comments concerning the draft 2015 UWMP were received by the Town of Discovery Bay; and

WHEREAS, on June 21, 2017 the Board of Directors of the Town of Discovery Bay conducted a regular meeting to receive and consider public comments on the 2015 UWMP, and no substantial changes were made as a result of the public discussion;

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE TOWN OF DISCOVERY BAY COMMUNITY SERVICES DISTRICT DOES HEREBY RESOLVE AS FOLLOWS:


- SECTION 1. That the Board of Directors of the Town of Discovery Bay adopts the 2015 UWMP as drafted by LSCE.
- SECTION 2. That the 2015 UWMP is made a part of this Resolution.
- SECTION 3. The Board Secretary shall certify the adoption of this Resolution.

PASSED, APPROVED AND ADOPTED THIS 21st DAY OF JUNE, 2017


Robert Leete
Board President

I hereby certify that the foregoing Resolution was duly adopted by the Board of Directors of the Town of Discovery Bay Community Services District at a regularly scheduled meeting, held on June 21, 2017 by the following vote of the Board:

AYES: 3 - President Leete, Vice-President Akves, Director Mayer
NOES: 0
ABSENT: 2 - Director Pease, Director Steele
ABSTAIN: 0


Michael R. Davies
Board Secretary

Appendix E
AWWA Free Water Audit Software

AWWA Free Water Audit Software v5.0

American Water Works Association Copyright © 2014, All Rights Reserved.

This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targetting loss reduction levels

The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons below.

Please begin by providing the following information

Name of Contact Person:	Jon Kaminsky		
Email Address:	jkaminsky@lsce.com		
Telephone Ext.:	530-661-0109		
Name of City / Utility:	Town of Discovery Bay Community Services District		
City/Town/Municipality:	Discovery Bay		
State / Province:	California (CA)		
Country:	USA		
Year:	2015	Calendar Year	
Audit Preparation Date:	1/18/2017		
Volume Reporting Units:	Million gallons (US)		
PWSID / Other ID:	0710009		

The following guidance will help you complete the Audit

All audit data are entered on the [Reporting Worksheet](#)

<input type="text"/>	Value can be entered by user
<input type="text"/>	Value calculated based on input data
<input type="text"/>	These cells contain recommended default values

Use of Option (Radio) Buttons: Pcnt: 0.25% Value:

Select the default percentage by choosing the option button on the left

To enter a value, choose this button and enter a value in the cell to the right

The following worksheets are available by clicking the buttons below or selecting the tabs along the bottom of the page

Instructions

The current sheet. Enter contact information and basic audit details (year, units etc)

Reporting Worksheet

Enter the required data on this worksheet to calculate the water balance and data grading

Comments

Enter comments to explain how values were calculated or to document data sources

Performance Indicators

Review the performance indicators to evaluate the results of the audit

Water Balance

The values entered in the Reporting Worksheet are used to populate the Water Balance

Dashboard

A graphical summary of the water balance and Non-Revenue Water components

Grading Matrix

Presents the possible grading options for each input component of the audit

Service Connection Diagram

Diagrams depicting possible customer service connection line configurations

Definitions

Use this sheet to understand the terms used in the audit process

Loss Control Planning

Use this sheet to interpret the results of the audit validity score and performance indicators

Example Audits

Reporting Worksheet and Performance Indicators examples are shown for two validated audits

Acknowledgements

Acknowledgements for the AWWA Free Water Audit Software v5.0

If you have questions or comments regarding the software please contact us via email at: wlc@awwa.org



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association
Copyright © 2014. All Rights Reserved.
 Click to access definition
 Click to add a comment

Water Audit Report for: **Town of Discovery Bay Community Services District (0710009)**
 Reporting Year: **2015** **1/2015 - 12/2015**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

Volume from own sources: MG/Yr
 Water imported: MG/Yr
 Water exported: MG/Yr

Master Meter and Supply Error Adjustments

Pcnt: Value: MG/Yr
 MG/Yr
 MG/Yr

Enter negative % or value for under-registration
 Enter positive % or value for over-registration

WATER SUPPLIED: MG/Yr

AUTHORIZED CONSUMPTION

Billed metered: MG/Yr
 Billed unmetered: MG/Yr
 Unbilled metered: MG/Yr
 Unbilled unmetered: MG/Yr

AUTHORIZED CONSUMPTION: MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

Apparent Losses

Unauthorized consumption: MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies: MG/Yr
 Systematic data handling errors: MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: MG/Yr

WATER LOSSES: MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains: miles
 Number of active AND inactive service connections:
 Service connection density: conn./mile main

Are customer meters typically located at the curbside or property line?

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: psi

COST DATA

Total annual cost of operating water system: \$/Year
 Customer retail unit cost (applied to Apparent Losses): \$/100 cubic feet (ccf)
 Variable production cost (applied to Real Losses): \$/Million gallons ☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 44 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Billed metered

3: Billed unmetered



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0

American Water Works Association.
Copyright © 2014, All Rights Reserved.Water Audit Report for: **Town of Discovery Bay Community Services District (0710009)**Reporting Year: **2015** **1/2015 - 12/2015******* YOUR WATER AUDIT DATA VALIDITY SCORE IS: 44 out of 100 *****

System Attributes:

Apparent Losses:	10.083	MG/Yr
+	Real Losses:	80.525 MG/Yr
=	Water Losses:	90.607 MG/Yr

? Unavoidable Annual Real Losses (UARL): **25.46** MG/YrAnnual cost of Apparent Losses: **\$20,380**Annual cost of Real Losses: **\$29,097**Valued at **Variable Production Cost**[Return to Reporting Worksheet to change this assumption](#)

Performance Indicators:

Financial:

{	Non-revenue water as percent by volume of Water Supplied:	10.7%	
	Non-revenue water as percent by cost of operating system:	2.1%	Real Losses valued at Variable Production Cost

Operational Efficiency:

{	Apparent Losses per service connection per day:	4.64	gallons/connection/day
	Real Losses per service connection per day:	37.10	gallons/connection/day
	Real Losses per length of main per day*:	N/A	
	Real Losses per service connection per day per psi pressure:	0.62	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): **80.52** million gallons/year**? Infrastructure Leakage Index (ILI) [CARL/UARL]:** **3.16**

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: User Comments

WAS

American Water Works Association.
Copyright © 2014, All Rights Reserved.

Use this worksheet to add comments or notes to explain how an input value was calculated, or to document the sources of the information used.

General Comment:	
Audit Item	Comment
Volume from own sources:	
Vol. from own sources: Master meter error adjustment:	
Water imported:	
Water imported: master meter error adjustment:	
Water exported:	
Water exported: master meter error adjustment:	
Billed metered:	
Billed unmetered:	
Unbilled metered:	

Audit Item	Comment
Unbilled unmetered:	
Unauthorized consumption:	
Customer metering inaccuracies:	
Systematic data handling errors:	
Length of mains:	
Number of active AND inactive service connections:	
Average length of customer service line:	
Average operating pressure:	
Total annual cost of operating water system:	
Customer retail unit cost (applied to Apparent Losses):	
Variable production cost (applied to Real Losses):	



AWWA Free Water Audit Software: Water Balance

WAS v5.0

American Water Works Association.

Water Audit Report for: **Town of Discovery Bay Community Services District (0710009)**Reporting Year: **2015**

1/2015 - 12/2015

Data Validity Score: **44**

Own Sources (Adjusted for known errors) 868.980	System Input 868.980	Water Exported 0.000	Billed Water Exported				Revenue Water 0.000
		Water Supplied 868.980	Authorized Consumption 778.372	Billed Authorized Consumption 776.200	Billed Metered Consumption (water exported is removed)		Revenue Water 776.200
					345.300		
				Unbilled Authorized Consumption 2.172	Billed Unmetered Consumption		Non-Revenue Water (NRW) 92.780
					430.900		
			Water Losses 90.607	Apparent Losses 10.083	Unbilled Metered Consumption		
					0.000		
					Unbilled Unmetered Consumption		
					2.172		
		Unauthorized Consumption					
2.172							
Water Imported 0.000			Real Losses 80.525	Leakage on Transmission and/or Distribution Mains Not broken down			
				Leakage and Overflows at Utility's Storage Tanks Not broken down			
				Leakage on Service Connections Not broken down			



AWWA Free Water Audit Software: Dashboard

WAS v5.0

American Water Works Association.
Copyright © 2014, All Rights Reserved.

The graphic below is a visual representation of the Water Balance with bar heights proportional to the volume of the audit components

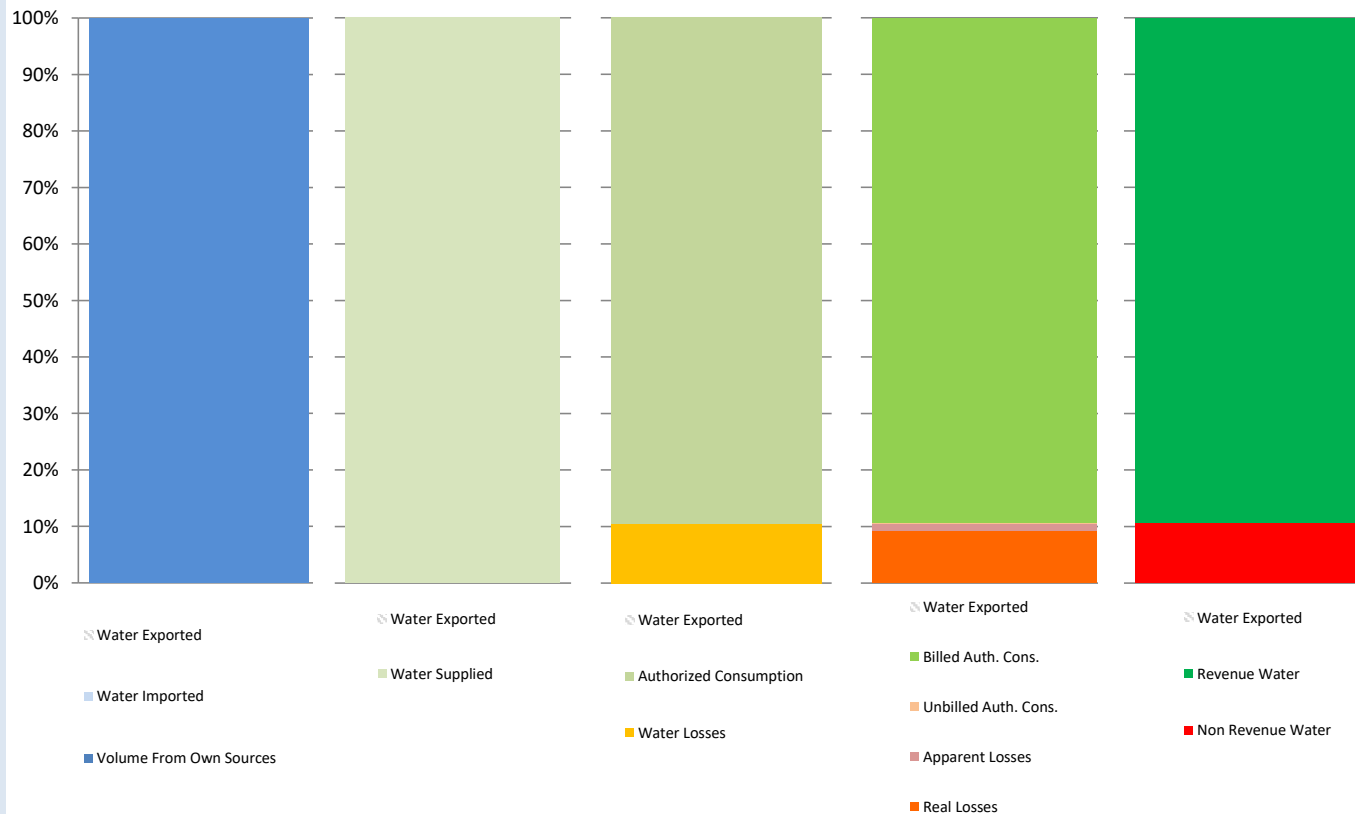
Water Audit Report for: **Town of Discovery Bay Community Services District (0710009)**

Reporting Year: **2015** **1/2015 - 12/2015**

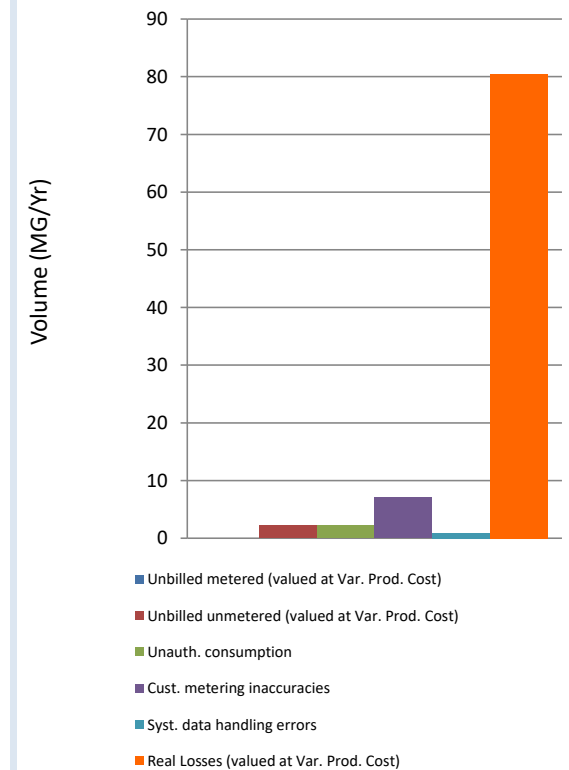
Data Validity Score: **44**

☒ Show me the VOLUME of Non-Revenue Water

☐ Show me the COST of Non-Revenue Water



Total Volume of NRW = 93 MG/Yr



Appendix F
Water Conservation Ordinances

**TOWN OF DISCOVERY BAY
COMMUNITY SERVICES DISTRICT**

RESOLUTION _____

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE TOWN OF DISCOVERY BAY,
A CALIFORNIA COMMUNITY SERVICES DISTRICT,
ON THE IMPLEMENTATION OF STAGE [II, III, OR IV] OF THE WATER SHORTAGE
CONTINGENCY PLAN AS OUTLINED IN THE 2010 URBAN WATER MANAGEMENT PLAN
ON FILE WITH THE CALIFORNIA DEPARTMENT OF WATER RESOURCES**

WHEREAS, on [DATE], by Resolution _____, The Board of Directors of the Town of Discovery Bay Community Services District approved the 2010 Urban Water Management Plan; and

WHEREAS, the 2010 Urban Water Management Plan includes the Water Shortage Contingency Plan; and

WHEREAS, based on the [describe water supply shortage condition caused by drought or loss of water supply wells] the Board of Directors of the Town of Discovery Bay Community Services District hereby declares that a water shortage emergency condition prevails within the water service area of the Town of Discovery Bay and that water use within the Town of Discovery Bay should be reduced by up to [15, 35 or 50] percent; and

WHEREAS, required water use reduction described above necessitates implementation of Stage [II, III, or IV] of the Town of Discovery Bay's Water Shortage Contingency Plan. The water conservation measures and water use restrictions for Stage [II, III or IV] are described in the attached Water Shortage Contingency Plan. Implementation of Stage [II, III or IV] shall be cumulative and shall include implementation of all previous provisions listed in Stages [I, II, or III]; and

WHEREAS, the General Manager is hereby authorized and empowered to delegate his or her authority hereunder to such assistants, deputies, officers, employees, or agents of the Town as he or she shall designate, and to establish such rules, regulations and procedures, and to prepare or furnish such forms, as he or she deems necessary or appropriate to carry out the provisions of the Resolution; and

WHEREAS, this Resolution shall be effective upon its adoption, and shall remain effective until the water shortage conditions are resolved, in which case this Resolution shall be rescinded, or until conditions worsen, thus requiring additional action by the Board of Directors, in which case a subsequent Resolution will be considered for adoption.

NOW, THEREFORE BE IT RESOLVED by the Board of Directors of the Town of Discovery Bay that Stage [II, III, or IV] of the Water Shortage Contingency Plan is hereby adopted.

PASSED, APPROVED AND ADOPTED THIS [day] DAY OF [month], [year] by the following vote:

Water Shortage Contingency Plan

Table of Contents

Section 1	Stages of Action
Section 2	Prohibitions
Section 3	Consumption Reduction Methods
Section 4	Penalties
Section 5	Revenue and Expenditure Impacts During Water Shortages
Section 6	Other Actions During Catastrophic Reductions

List of Tables

1. Rationing Stages to address water Supply Shortages
2. Mandatory Prohibitions
3. Proposed Consumption Reduction Methods
4. Penalties and Charges

Attachments

1. Resolution 2014-11 – Voluntary Water Reduction (Appendix C.2)
2. Ordinance No. 25 Establishing Emergency Drought Regulations (Appendix C.3)

This document outlines stages of actions that will be implemented by TODB in the event of water supply shortages and emergency preparedness and plans for catastrophic events. The purpose of this contingency plan is to provide a plan of action to be followed at the various stages of a water shortage. A copy of TODB's current water reduction ordinances and resolutions, are in Appendix C.2 and C.3.

Section 1 Stages of Action

CWC Section 10632 (a) requires stages of action to be undertaken by the water supplier in response to water supply shortages, including up to a 50-percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

TODB will implement a four-stage action in response to water supply shortages to comply with State requirements. The stages will be implemented during water supply shortages, or regional drought conditions that may not be directly influencing TODB water supplies. The stage determination and declaration of a water supply shortage will be made by the TODB Board of Directors.

Stage I – This stage is part of an ongoing public information campaign encouraging voluntary water conservation. TODB issued a resolution for voluntary water use in *Resolution 2014-11 – Voluntary Water Reduction* (Appendix C.2). There is little to no water shortage during Stage 1. Although Stage I is ongoing, customers are reminded when a regional single-year drought is occurring, or when TODB has a redundant back-up well offline for repairs, which makes the overall supply system more vulnerable to shortages.

Stage II – This stage would be initiated during moderate water shortage (of up to 15%) and would be the first stage where mandatory conservation and water use prohibitions are enforced. Failure of two groundwater supply wells could cause a moderate reduction in water supply resulting in implementation of Stage II. Stage II would also be implemented during a regional severe drought where water conservation is mandatory but impacts to TODB's groundwater supply wells are negligible or non-existent. During Stage II the Board of Directors will declare prohibitions on water use, in accordance with the TODB *Ordinance No. 25 Establishing Emergency Drought Regulations* (Appendix C.3).

Stage III – This stage would be initiated during a severe water shortage (15 to 35%), which could be caused by a catastrophic failure of up to three groundwater supply wells. During Stage III, the Board of Directors would adopt a new ordinance providing authority for the General Manager to implement additional prohibitions and consumption reduction methods that would include water rationing if other consumption reduction methods are not effective at reducing demand.

Stage IV – This stage would be initiated during a critical water shortage (35 to 50%), which could be caused by a catastrophic failure of more than three groundwater supply wells. All steps taken in the prior stages would be intensified and production would be monitored daily for compliance with necessary reductions. Residents would be under water rationing. TODB would be in emergency status to repair and bring online water supply wells.

Table 1 lists the four stages of action for the water shortage contingency.

Table 1 Rationing Stages to Address Water Supply Shortages		
Stage No.	Water Supply Conditions	% Shortage
I - Voluntary	Normal to Minimum – Ex: loss of a redundant well supply	0-5%
II – Mandatory Conservation	Moderate – Ex: Severe drought <u>or</u> catastrophic loss of 2 wells	0-15%
III - Rationing	Severe to Critical – Ex: Catastrophic loss of 3 wells	15-35%
IV – Intense Rationing	Severe to Critical – Ex: Catastrophic loss of 3 or more wells	35-50%

Section 2 Prohibitions

The CWC Section 10632 (d) requires water suppliers to implement mandatory prohibitions against specific water use practices that may be considered excessive during water shortages. If drought conditions or water shortages warrant mandatory prohibitions (Stage II) TODB will implement the current water shortage emergency response plan, *Ordinance No. 25 Establishing Emergency Drought Regulations* (Appendix C.3). Further mandatory prohibitions will be implemented if warranted based on Stage III or Stage IV conditions. Table 2 identifies potential prohibitions that would be enforced during a water shortage emergency.

Table 2 Mandatory Prohibitions	
Prohibitions	Stage When Prohibition Becomes Mandatory
Excessive outdoor watering (causing runoff to non-irrigated areas)	II, III, IV
Use of hose without a shut-off nozzle for vehicle washing	II, III, IV
Application of water to driveways or sidewalks	II, III, IV
Use of water in non-circulating fountain or water feature	II, III, IV
Outdoor irrigation beyond the allowed watering schedule	II, III, IV
Uncorrected plumbing leaks	III, IV
Washing cars	III, IV
Watering lawns/landscapes or filling outdoor water features	III, IV

Section 3 Consumption Reduction Methods

CWC Section 10632 (e) requires the water supplier to implement consumption-reduction methods during the most severe stages of water shortage that are capable of reducing water use by up to 50%. TODB would implement the water consumption–reduction methods shown on Table 3, below. Some of the methods are on-going and are part of the TODB water conservation efforts addressed in the Demand Management Measures.

Table 3 Proposed Consumption Reduction Methods		
Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
Demand Reduction Program	All stages	10-20%
Water conservation kits	All stages	10-20%
Education programs	All stages	10-20%
Voluntary rationing	All stages	0-20%
Mandatory prohibitions	II, III, IV	10-20%
Apply flow restrictions to customers	III, IV	35-50%
Water shortage pricing	III, IV	10-50%
Apply penalties for excessive water use	II, III, IV	10-50%
Restrict water use for only priority uses	III, IV	10-50%
Mandatory water rationing, per capita allotment	IV	20-50%

Section 4 Penalties

CWC Section 10632 (f) requires a water supplier to penalize or charge for excessive use, where applicable. In accordance with the TODB Ordinance No. 25, when a water shortage emergency is declared, the General Manager may issue a Notice of Violation to any customer that fails to comply with the conditions of the ordinance. After one notice has been issued further violations shall be punishable by a fine of: \$25 for a first violation; \$50 for a second violation; \$100 for a third violation; and \$500 for a fourth violation and any subsequent violation thereafter.

Furthermore each day upon which any condition of the ordinance is violated constitutes a separate violation.

During severe and critical water shortages (Stages III and IV), there will be additional charges applied for excessive water use. During these water shortages, the General Manager may take further actions if violations continue after the one written warning, such as installing a flow-restricting device on the service line, or termination of service for repeated violations of unauthorized water use. Table 4 presents the stages during which penalties and charges take effect.

Table 4 Water shortage contingency — penalties and charges	
Penalties or Charges	Stage When Penalty Takes Effect
Penalty for excess use	II, III, IV
Charge for excess use	III, IV
Flow Restriction	III, IV
Termination of Service	III, IV

Section 5 Revenue and Expenditure Impacts During Water Shortages

CWC Section 10632 (f) requires an analysis of the impacts of consumption reduction on the revenues and expenditures of the water supplier. TODB will establish an accounting for tracking expenses and revenue shortfalls associated with water conservation and rationing. TODB maintains reserve funds that can be used to offset expenditure impacts during times of emergency. TODB will implement a surcharge to recover unmitigated revenue shortfalls.

Section 6 Other Actions During Catastrophic Reductions

In the event of catastrophic reduction in water supplies, TODB would implement emergency preparedness plans, depending on the cause and severity of the water shortage. California Water Code (CWC) Section 10632 (c) requires certain actions to be undertaken by the water supplier during a catastrophic interruption in water supplies. A catastrophic event resulting in water shortage would be any event, either natural or man-made, with varying levels of severity to the water supply conditions. Examples include, but are not limited to, a regional power outage, an earthquake, or other disasters.

TODB has in place an Emergency Operations Plan that would be implemented by the TODB staff in the event of a catastrophic water shortage. TODB has equipped its facilities with standby emergency generators that would be operated if the catastrophic event involved loss of power. Both of the water treatment plants and booster stations are equipped with permanent emergency generators and automatic transfer switches. TODB owns portable generators that can be used to operate the groundwater pumping stations. If there is catastrophic rupturing of pipelines, during an earthquake for example, the emergency operations procedures would be followed to isolate the damaged sections, notify customers and immediately repair the damage.



**TOWN OF DISCOVERY BAY
COMMUNITY SERVICES DISTRICT**

RESOLUTION 2014-11

**A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE TOWN OF DISCOVERY BAY,
A CALIFORNIA COMMUNITY SERVICES DISTRICT,
ENCOURAGING DISCOVERY BAY RESIDENTS TO VOLUNTARILY
REDUCE WATER CONSUMPTION BY 20% TO AID IN DROUGHT RELIEF EFFORTS**

WHEREAS, Town of Discovery Bay Community Services District has as one of its functions the production, treatment and delivery of potable water for domestic purposes; and

WHEREAS, the State of California is in the midst of a three-year water drought that has severely depleted the reservoirs and lakes necessary to provide continued water supplies to all Californians; and

WHEREAS, on January 17, 2014 California Governor Edmund G. Brown declared a water State of Emergency as California and the West enter yet another year of extreme drought conditions; and

WHEREAS, on April 25, 2014 Governor Brown urged all Californians to reduce water consumption by 20%, and encourages all Californians to visit www.saveourh2o.org to find out how water can be conserved.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE TOWN OF DISCOVERY BAY COMMUNITY SERVICES DISTRICT DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. That the Town of Discovery Bay encourages all Discovery Bay water users to voluntarily reduce water consumption by 20% until the time the drought has ended and to visit www.saveourh2o.org to find ways to conserve water.

SECTION 2. The Board Secretary shall certify the adoption of this Resolution.

PASSED, APPROVED AND ADOPTED THIS 4th DAY OF June, 2014.

Mark Simon
Board President

I hereby certify that the foregoing Resolution was duly adopted by the Board of Directors of the Town of Discovery Bay Community Services District at a regularly scheduled meeting, held on June 4, 2014, by the following vote of the Board:

AYES: 5
NOES: 0
ABSENT: 0
ABSTAIN: 0

Richard J. Howard
Board Secretary



**TOWN OF DISCOVERY BAY
COMMUNITY SERVICES DISTRICT
ORDINANCE NO. 25**

**AN ORDINANCE OF THE BOARD OF DIRECTORS
OF THE TOWN OF DISCOVERY BAY,
A CALIFORNIA COMMUNITY SERVICES DISTRICT,
ESTABLISHING EMERGENCY DROUGHT REGULATIONS**

Be it ordained by the Board of Directors of the Town of Discovery Bay Community Services District as follows:

SECTION 1. Short Title

This Ordinance shall be known and may be cited as Town of Discovery Bay Drought Emergency Regulation Ordinance.

SECTION 2. Purpose

The purpose of this Ordinance is to protect the health, safety, and welfare of residents of the Town of Discovery Bay Community Services District; to respond to the current drought crisis and other possible crises in the future; to authorize the Board of Directors to declare a water shortage emergency; and to regulate water usage with the District for the purpose of conserving severely limited water resources.

SECTION 3. Water Shortage Emergency Declaration

The Board of Directors may declare a water shortage emergency by resolution and upon finding that additional water use restrictions are necessary for the immediate protection of health and safety or are required by State law.

A water shortage emergency declaration shall remain in effect until the Board of Directors finds and declares by resolution that the water shortage emergency condition has abated, has changed in degree, or no longer exists.

SECTION 4. Regulations

While a water shortage emergency declaration is in effect, the following activities shall be prohibited except where necessary to address an immediate health and safety need:

1. The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;
2. The use of a hose that dispenses potable water to wash a motor vehicle except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use;
3. The application of potable water to driveways and sidewalks;
4. The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system;
5. Outdoor irrigation of lawns, ornamental landscapes, or turf with potable water, except as follows:
 - a. Dwellings or establishments with odd numbered street addresses may use outdoor water before 1 p.m. and after 7 p.m. on Wednesdays and Sundays only;

- b. Dwellings or establishments with even numbered street addresses may use outdoor water before 1p.m. and after 7 p.m. on Tuesdays and Saturdays only.
- c. All dwellings, establishments, businesses, associations, parks or open spaces that are connected to an outdoor irrigation system which provides outdoor irrigation to multiple addresses, units and/or areas with or without an address may use outdoor water not more than two days per week for each zone or area controlled by that irrigation system.

SECTION 5. Enforcement

The General Manager of the District shall administer, implement and enforce the provisions of this Ordinance. Any powers granted to or duties imposed upon the General Manager may be delegated by the General Manager to persons acting in the beneficial interest of or in the employ of the District.

SECTION 6. Violation

The General Manager, or his/her designee, may issue a Notice of Violation to any person, business, association, or other party who fails to comply with any condition of this Ordinance. Failure to comply with any condition of this Ordinance after the issuance of a Notice of Violation shall be punishable by a fine of \$25 for a first violation, a fine of \$50 for a second violation, a fine of \$100 for a third violation, and a fine of \$500 for a fourth violation and any subsequent violation thereafter. Each day upon which any condition of this Ordinance is violated shall constitute a separate violation.

Any use or activity in violation of the terms of this Ordinance is declared to be a nuisance per se, and may be abated by order of any court of competent jurisdiction. The District Board, in addition to other remedies, may institute any appropriate action or proceedings to prevent, abate, or restrain the violation. All costs, fees and expenses in connection with such action shall be assessed as damages against the violation.

SECTION 7. Severability

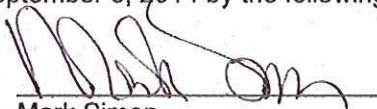
The various parts, paragraphs, section, and clauses of this Ordinance are declared to be severable. If any part, sentence, paragraph, section, or clause is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of the Ordinance shall not be affected.

SECTION 8. Adoption and Effective Date

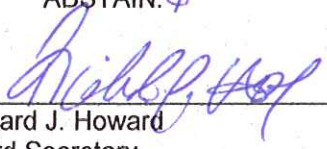
This Ordinance is hereby declared to have been adopted by the District Board at a meeting thereof duly called and held on the 3rd day of September, 2014, and ordered to be given effect thirty (30) days after its first publication as mandated by statute.

CERTIFICATION

Passed and adopted at a regular meeting of the Board of Directors of the Town of Discovery Bay Community Services District held on September 3, 2014 by the following vote:


Mark Simon
Board President

AYES: 5
NOES: 0
ABSENT: 0
ABSTAIN: 0


Richard J. Howard
Board Secretary



**TOWN OF DISCOVERY BAY
COMMUNITY SERVICES DISTRICT
ORDINANCE NO. 2016-27**

**AN ORDINANCE OF THE BOARD OF DIRECTORS
OF THE TOWN OF DISCOVERY BAY,
A CALIFORNIA COMMUNITY SERVICES DISTRICT,
DROUGHT REGULATION ORDINANCE
AMENDING IN ITS ENTIRETY AND RE-NUMBERING ORDINANCE NO. 25**

Be it ordained by the Board of Directors of the Town of Discovery Bay Community Services District as follows:

SECTION 1. Short Title

This Ordinance shall be known and may be cited as Town of Discovery Bay Drought Regulation Ordinance ("Ordinance").

SECTION 2. Purpose

The purpose of this Ordinance is to protect the health, safety, and welfare of residents of the Town of Discovery Bay Community Services District ("District"); to continue to respond to the ongoing drought issues and to regulate water usage in the District for the purpose of conserving limited water resources.

SECTION 3. Water Shortage Emergency Declaration and Response Authority

The Board of Directors may declare a water shortage emergency by resolution upon finding that water use restrictions are necessary for the immediate protection of health and safety or as required by State law.

A water shortage emergency declaration is effective until the Board of Directors finds, and declares by resolution, that the water shortage emergency condition has abated, changed in degree, or no longer exists.

The Board of Directors has the authority to continue water conservation regulations to address water supply conditions within the District. The Board of Directors may also take additional action to prevent waste and unreasonable use of water and to further promote conservation.

SECTION 4. Water Conservation Regulations

While the District continues to be impacted by limited water supplies, the following activities are prohibited, except where necessary to address an immediate health and safety need:

1. The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;

2. The use of a hose that dispenses potable water to wash a motor vehicle except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use;
3. The application of potable water to driveways and sidewalks;
4. The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system;
5. The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall;
6. The irrigation of landscapes outside of newly constructed homes and buildings with potable water in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development;
7. The irrigation of ornamental turf on public street medians with potable water;
8. The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served or purchased.

SECTION 5. Enforcement

The General Manager of the District shall administer, implement and enforce the provisions of this Ordinance. Any powers or duties granted to the General Manager may be delegated by the General Manager to persons acting in the beneficial interest of or in the employ of the District.

SECTION 6. Violation

The General Manager, or his/her designee, may issue a Notice of Violation to any person, business, association, or other party who fails to comply with any conditions of this Ordinance. Any person, business, association or other party violating this Ordinance after issuance of a Notice of Violation shall be assessed a fine of \$25 for a first violation, a fine of \$50 for a second violation in any 6-month period, and a fine of \$100 for each additional violation in any 6-month period. Fines assessed pursuant to this Ordinance may be included in the offending party's water service bill or, for unmetered accounts which do not receive a water service bill, with the water service charges collected on the county tax roll on behalf of the District. Non-payment of water service bills or water service charges collected on the county tax roll on behalf of the District, including the non-payment of any fine included therein, may result in termination of service and disconnection from the water system pursuant to District Ordinance. In addition to any other action taken by the District, the District may utilize an outside collection agency to recover unpaid fines.

Any use or activity in violation of the terms of this Ordinance is declared to be a nuisance per se, and may be abated by order of any court of competent jurisdiction. The District Board, in addition to other remedies, may institute any appropriate action or proceedings to prevent, abate, or restrain the violation. All costs, fees and expenses in connection with such action shall be assessed as damages against the violation.

SECTION 7. Appeals

Any party subject to a Notice of Violation or fine issued pursuant this Ordinance may appeal for reconsideration. Appeals for reconsideration shall be processed as follows:

1. A party appealing for reconsideration a Notice of Violation or fine issued pursuant to this Ordinance shall do so in writing to the General Manager by either using forms provided by the District or by letter setting forth in detail the reasons for the appeal.
2. The General Manager shall review all appeals for consideration and shall within fifteen (15) days of receipt of the written appeal notify the appealing party of his or her decision to deny or sustain the appeal, or to modify the Notice of Violation or fine based on the evidence presented.
3. If the appealing party disagrees with the General Manager's decision, the decision may be appealed to the Board of Directors. An appeal to the Board of Directors shall be submitted in writing to the Clerk of the Board by either using forms provided by the District or by letter setting forth in detail the reasons for the appeal. Each appeal to the Board of Directors shall be accompanied by the payment of an appeal fee of \$25.00, or as set by resolution of the Board of Directors, to defray the costs of the appeal.
4. If an appeal to the Board of Directors is made, the appealing party shall be notified of a hearing date by mail. Such hearing shall be scheduled within thirty (30) days of receipt of the written appeal. A decision shall be forwarded to the appealing party within fifteen (15) days after completion of the hearing. Decisions by the Board of Directors are final.

SECTION 8. Severability

The various parts, paragraphs, section, and clauses of this Ordinance are declared to be severable. If any part, sentence, paragraph, section, or clause is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of the Ordinance shall not be affected.

SECTION 9. Adoption and Effective Date

This Ordinance is hereby declared to have been adopted by the District Board of Directors at a meeting thereof duly called and held on the 6th day of July, 2016, and ordered to be given effect thirty (30) days after its first publication as mandated by statute.


CERTIFICATION

Passed and adopted at a regular meeting of the Board of Directors of the Town of Discovery Bay Community Services District held on July 6, 2016 by the following vote:



Bill Pease
Board President

AYES: 5
NOES: 4
ABSENT: 8
ABSTAIN: 8



Catherine Kutsuris
Board Secretary

Appendix G

SB X7-7 Tables

SB X7-7 Table 0: Units of Measure Used in UWMP**(select one from the drop down list)*

Million Gallons

**The unit of measure must be consistent with Table 2-3*

NOTES:

SB X7-7 Table-1: Baseline Period Ranges

Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	1,328	Million Gallons
	2008 total volume of delivered recycled water	-	Million Gallons
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period ^{1, 2}	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range ³	2010	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range ⁴	2007	

¹ If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. ² The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.

³ The ending year must be between December 31, 2004 and December 31, 2010.

⁴ The ending year must be between December 31, 2007 and December 31, 2010.

NOTES:

SB X7-7 Table 2: Method for Population Estimates**Method Used to Determine Population**
(may check more than one)**1. Department of Finance (DOF)**DOF Table E-8 (1990 - 2000) and (2000-2010) and
DOF Table E-5 (2011 - 2015) when available**2. Persons-per-Connection Method****3. DWR Population Tool****4. Other**

DWR recommends pre-review

NOTES: 2010 U.S. Census Data. An estimate of part-time residents is added.

SB X7-7 Table 3: Service Area Population

Year		Population
10 to 15 Year Baseline Population		
Year 1	2001	9,594
Year 2	2002	9,594
Year 3	2003	9,447
Year 4	2004	11,125
Year 5	2005	12,034
Year 6	2006	13,106
Year 7	2007	13,110
Year 8	2008	13,164
Year 9	2009	13,155
Year 10	2010	13,352
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2003	9,447
Year 2	2004	11,125
Year 3	2005	12,034
Year 4	2006	13,106
Year 5	2007	13,110
2015 Compliance Year Population		
2015		14,895
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year <i>Fm SB X7-7 Table 3</i>		Volume Into Distribution System <i>This column will remain blank until SB X7-7 Table 4-A is completed.</i>	Deductions					Annual Gross Water Use
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water <i>This column will remain blank until SB X7-7 Table 4-B is completed.</i>	Water Delivered for Agricultural Use	Process Water <i>This column will remain blank until SB X7-7 Table 4-D is completed.</i>	
10 to 15 Year Baseline - Gross Water Use								
Year 1	2001	818	-	-	-	-	-	818
Year 2	2002	851	-	-	-	-	-	851
Year 3	2003	921	-	-	-	-	-	921
Year 4	2004	1,035	-	-	-	-	-	1,035
Year 5	2005	1,204	-	-	-	-	-	1,204
Year 6	2006	1,185	-	-	-	-	-	1,185
Year 7	2007	1,322	-	-	-	-	-	1,322
Year 8	2008	1,328	-	-	-	-	-	1,328
Year 9	2009	1,282	-	-	-	-	-	1,282
Year 10	2010	1,306	-	-	-	-	-	1,306
<i>Year 11</i>	0	-			-		-	-
<i>Year 12</i>	0	-			-		-	-
<i>Year 13</i>	0	-			-		-	-
<i>Year 14</i>	0	-			-		-	-
<i>Year 15</i>	0	-			-		-	-
10 - 15 year baseline average gross water use								1,125
5 Year Baseline - Gross Water Use								
Year 1	2003	921	-	-	-	-	-	921
Year 2	2004	1,035	-	-	-	-	-	1,035
Year 3	2005	1,204	-	-	-	-	-	1,204
Year 4	2006	1,185	-	-	-	-	-	1,185
Year 5	2007	1,322	-	-	-	-	-	1,322
5 year baseline average gross water use								1,133
2015 Compliance Year - Gross Water Use								
2015		852	-	-	-	-	-	852

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES:	
--------	--

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source WTPs 1 and 2

This water source is:



The supplier's own water source



A purchased or imported source

Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System
---	--	---	--

10 to 15 Year Baseline - Water into Distribution System

Year 1	2001	818	-	818
Year 2	2002	851	-	851
Year 3	2003	921	-	921
Year 4	2004	1,035	-	1,035
Year 5	2005	1,204	-	1,204
Year 6	2006	1,185	-	1,185
Year 7	2007	1,322	-	1,322
Year 8	2008	1,328	-	1,328
Year 9	2009	1,282	-	1,282
Year 10	2010	1,306	-	1,306
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-

5 Year Baseline - Water into Distribution System

Year 1	2003	921	-	921
Year 2	2004	1,035	-	1,035
Year 3	2005	1,204	-	1,204
Year 4	2006	1,185	-	1,185
Year 5	2007	1,322	-	1,322

2015 Compliance Year - Water into Distribution System

2015	852	-	852
-------------	-----	---	-----

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*

Baseline Year <i>Fm SB X7-7 Table 3</i>		Surface Reservoir Augmentation					Groundwater Recharge			Total Deductible Volume of Indirect Recycled Water Entering the Distribution System
		Volume Discharged from Reservoir for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility*	Transmission/ Treatment Losses	Recycled Volume Entering Distribution System from Groundwater Recharge	
10-15 Year Baseline - Indirect Recycled Water Use										
Year 1	2001			-		-			-	-
Year 2	2002			-		-			-	-
Year 3	2003			-		-			-	-
Year 4	2004			-		-			-	-
Year 5	2005			-		-			-	-
Year 6	2006			-		-			-	-
Year 7	2007			-		-			-	-
Year 8	2008			-		-			-	-
Year 9	2009			-		-			-	-
Year 10	2010			-		-			-	-
Year 11	0			-		-			-	-
Year 12	0			-		-			-	-
Year 13	0			-		-			-	-
Year 14	0			-		-			-	-
Year 15	0			-		-			-	-
5 Year Baseline - Indirect Recycled Water Use										
Year 1	2003			-		-			-	-
Year 2	2004			-		-			-	-
Year 3	2005			-		-			-	-
Year 4	2006			-		-			-	-
Year 5	2007			-		-			-	-
2015 Compliance - Indirect Recycled Water Use										
2015				-		-			-	-
*Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.										
NOTES:										

SB X7-7 Table 4-C: Process Water Deduction Eligibility

(For use only by agencies that are deducting process water) Choose Only One

<input type="checkbox"/>	Criteria 1- Industrial water use is equal to or greater than 12% of gross water use. Complete SB X7-7 Table 4-C.1
<input type="checkbox"/>	Criteria 2 - Industrial water use is equal to or greater than 15 GPCD. Complete SB X7-7 Table 4-C.2
<input type="checkbox"/>	Criteria 3 - Non-industrial use is equal to or less than 120 GPCD. Complete SB X7-7 Table 4-C.3
<input type="checkbox"/>	Criteria 4 - Disadvantaged Community. Complete SB x7-7 Table 4-C.4

NOTES:

SB X7-7 Table 4-C.1: Process Water Deduction Eligibility
Criteria 1

Industrial water use is equal to or greater than 12% of gross water use

Baseline Year <i>Fm SB X7-7 Table 3</i>		Gross Water Use Without Process Water Deduction	Industrial Water Use	Percent Industrial Water	Eligible for Exclusion Y/N
10 to 15 Year Baseline - Process Water Deduction Eligibility					
Year 1	2001	818		0%	NO
Year 2	2002	851		0%	NO
Year 3	2003	921		0%	NO
Year 4	2004	1,035		0%	NO
Year 5	2005	1,204		0%	NO
Year 6	2006	1,185		0%	NO
Year 7	2007	1,322		0%	NO
Year 8	2008	1,328		0%	NO
Year 9	2009	1,282		0%	NO
Year 10	2010	1,306		0%	NO
Year 11	0	-			NO
Year 12	0	-			NO
Year 13	0	-			NO
Year 14	0	-			NO
Year 15	0	-			NO
5 Year Baseline - Process Water Deduction Eligibility					
Year 1	2003	921		0%	NO
Year 2	2004	1,035		0%	NO
Year 3	2005	1,204		0%	NO
Year 4	2006	1,185		0%	NO
Year 5	2007	1,322		0%	NO
2015 Compliance Year - Process Water Deduction Eligibility					
2015		852		0%	NO
NOTES:					

SB X7-7 Table 4-C.2: Process Water Deduction Eligibility

Criteria 2

Industrial water use is equal to or greater than 15 GPCD

Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Water Use	Population	Industrial GPCD	Eligible for Exclusion Y/N
10 to 15 Year Baseline - Process Water Deduction Eligibility				
Year 1	2001		9,594	- NO
Year 2	2002		9,594	- NO
Year 3	2003		9,447	- NO
Year 4	2004		11,125	- NO
Year 5	2005		12,034	- NO
Year 6	2006		13,106	- NO
Year 7	2007		13,110	- NO
Year 8	2008		13,164	- NO
Year 9	2009		13,155	- NO
Year 10	2010		13,352	- NO
<i>Year 11</i>	0		-	NO
<i>Year 12</i>	0		-	NO
<i>Year 13</i>	0		-	NO
<i>Year 14</i>	0		-	NO
<i>Year 15</i>	0		-	NO
5 Year Baseline - Process Water Deduction Eligibility				
Year 1	2003		9,447	- NO
Year 2	2004		11,125	- NO
Year 3	2005		12,034	- NO
Year 4	2006		13,106	- NO
Year 5	2007		13,110	- NO
2015 Compliance Year - Process Water Deduction Eligibility				
2015		14,895	-	NO
NOTES:				

SB X7-7 Table 4-C.3: Process Water Deduction Eligibility
Criteria 3

Non-industrial use is equal to or less than 120 GPCD

Baseline Year <i>Fm SB X7-7 Table 3</i>		Gross Water Use Without Process Water Deduction <i>Fm SB X7-7 Table 4</i>	Industrial Water Use	Non-industrial Water Use	Population <i>Fm SB X7-7 Table 3</i>	Non-Industrial GPCD	Eligible for Exclusion Y/N
10 to 15 Year Baseline - Process Water Deduction Eligibility							
Year 1	2001	818		818	9,594	234	NO
Year 2	2002	851		851	9,594	243	NO
Year 3	2003	921		921	9,447	267	NO
Year 4	2004	1,035		1,035	11,125	255	NO
Year 5	2005	1,204		1,204	12,034	274	NO
Year 6	2006	1,185		1,185	13,106	248	NO
Year 7	2007	1,322		1,322	13,110	276	NO
Year 8	2008	1,328		1,328	13,164	276	NO
Year 9	2009	1,282		1,282	13,155	267	NO
Year 10	2010	1,306		1,306	13,352	268	NO
<i>Year 11</i>	0	-		-	-		NO
<i>Year 12</i>	0	-		-	-		NO
<i>Year 13</i>	0	-		-	-		NO
<i>Year 14</i>	0	-		-	-		NO
<i>Year 15</i>	0	-		-	-		NO
5 Year Baseline - Process Water Deduction Eligibility							
Year 1	2003	921		921	9,447	267	NO
Year 2	2004	1,035		1,035	11,125	255	NO
Year 3	2005	1,204		1,204	12,034	274	NO
Year 4	2006	1,185		1,185	13,106	248	NO
Year 5	2007	1,322		1,322	13,110	276	NO
2015 Compliance Year - Process Water Deduction Eligibility							
2015		852		852	14,895	157	NO

NOTES:

SB X7-7 Table 4-C.4: Process Water Deduction Eligibility**Criteria 4**

Disadvantaged Community. A "Disadvantaged Community" (DAC) is a community with a median household income less than 80 percent of the statewide average.

SELECT ONE

"Disadvantaged Community" status was determined using one of the methods listed below:

<input type="checkbox"/>	1. IRWM DAC Mapping tool http://www.water.ca.gov/irwm/grants/resources_dac.cfm				
	If using the IRWM DAC Mapping Tool, include a screen shot from the tool showing that the service area is considered a DAC.				
<input checked="" type="checkbox"/>	2. 2010 Median Income				
	California Median Household Income		Service Area Median Household Income	Percentage of Statewide Average	Eligible for Exclusion? Y/N
	2015 Compliance Year - Process Water Deduction Eligibility				
	2010	\$60,883	\$98,000	161%	NO
	NOTES:				

SB X7-7 Table 4-D: Process Water Deduction - Volume*Complete a**separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer		Industrial Customer 1				
Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2001				-	
Year 2	2002				-	
Year 3	2003				-	
Year 4	2004				-	
Year 5	2005				-	
Year 6	2006				-	
Year 7	2007				-	
Year 8	2008				-	
Year 9	2009				-	
Year 10	2010				-	
Year 11	0				-	
Year 12	0				-	
Year 13	0				-	
Year 14	0				-	
Year 15	0				-	
5 Year Baseline - Process Water Deduction						
Year 1	2003				-	
Year 2	2004				-	
Year 3	2005				-	
Year 4	2006				-	
Year 5	2007				-	
2015 Compliance Year - Process Water Deduction						
2015					-	
NOTES:						

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)

Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Annual Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2001	9,594	818	234
Year 2	2002	9,594	851	243
Year 3	2003	9,447	921	267
Year 4	2004	11,125	1,035	255
Year 5	2005	12,034	1,204	274
Year 6	2006	13,106	1,185	248
Year 7	2007	13,110	1,322	276
Year 8	2008	13,164	1,328	276
Year 9	2009	13,155	1,282	267
Year 10	2010	13,352	1,306	268
<i>Year 11</i>	0	-	-	
<i>Year 12</i>	0	-	-	
<i>Year 13</i>	0	-	-	
<i>Year 14</i>	0	-	-	
<i>Year 15</i>	0	-	-	
10-15 Year Average Baseline GPCD				261
5 Year Baseline GPCD				
Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use
Year 1	2003	9,447	921	267
Year 2	2004	11,125	1,035	255
Year 3	2005	12,034	1,204	274
Year 4	2006	13,106	1,185	248
Year 5	2007	13,110	1,322	276
5 Year Average Baseline GPCD				264
2015 Compliance Year GPCD				
2015		14,895	852	157
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day*Summary From Table SB X7-7 Table 5*

10-15 Year Baseline GPCD	261
5 Year Baseline GPCD	264
2015 Compliance Year GPCD	157

NOTES:

SB X7-7 Table 7: 2020 Target Method*Select Only One*

Target Method		Supporting Documentation
<input checked="" type="checkbox"/>	Method 1	SB X7-7 Table 7A
<input type="checkbox"/>	Method 2	SB X7-7 Tables 7B, 7C, and 7D <i>Contact DWR for these tables</i>
<input type="checkbox"/>	Method 3	SB X7-7 Table 7-E
<input type="checkbox"/>	Method 4	Method 4 Calculator

NOTES:

SB X7-7 Table 7-A: Target Method 1
20% Reduction

10-15 Year Baseline GPCD	2020 Target GPCD
261	209

NOTES:

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-C: Target Method 2

Target CII Water Use

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-D: Target Method 2 Summary

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-E: Target Method 3

Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
<input type="checkbox"/>		North Coast	137	130
<input type="checkbox"/>		North Lahontan	173	164
<input type="checkbox"/>		Sacramento River	176	167
<input type="checkbox"/>		San Francisco Bay	131	124
<input type="checkbox"/>		San Joaquin River	174	165
<input type="checkbox"/>		Central Coast	123	117
<input type="checkbox"/>		Tulare Lake	188	179
<input type="checkbox"/>		South Lahontan	170	162
<input type="checkbox"/>		South Coast	149	142
<input type="checkbox"/>		Colorado River	211	200
Target <i>(If more than one region is selected, this value is calculated.)</i>				0
NOTES: <div></div>				

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target

5 Year Baseline GPCD <i>From SB X7-7 Table 5</i>	Maximum 2020 Target ¹	Calculated 2020 Target ²	Confirmed 2020 Target
264	251	209	209

¹ Maximum 2020 Target is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.

² 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD

Confirmed 2020 Target <i>Fm SB X7-7 Table 7-F</i>	10-15 year Baseline GPCD <i>Fm SB X7-7 Table 5</i>	2015 Interim Target GPCD
209	261	235

NOTES:

SB X7-7 Table 9: 2015 Compliance

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments <i>(in GPCD)</i>					2015 GPCD <i>(Adjusted if applicable)</i>	Did Supplier Achieve Targeted Reduction for 2015?
		Enter "0" if Adjustment Not Used			TOTAL Adjustments	Adjusted 2015 GPCD		
		Extraordinary Events	Weather Normalization	Economic Adjustment				
157	235	<i>From Methodology 8 (Optional)</i>	<i>From Methodology 8 (Optional)</i>	<i>From Methodology 8 (Optional)</i>	-	157	157	YES

NOTES:

Appendix H
LSCE Memo on Groundwater Conditions

Memorandum

DATE: June, 20, 2016

TO: Catherine Kutsuris, Interim General Manager
Town of Discovery Bay Community Services District

FROM: Tom Elson
Justin Shobe

SUBJECT: Supporting Analysis on Groundwater Conditions
2016 Self-Certified Water Conservation Standard

Introduction

This memorandum provides supporting analysis of water supply reliability for the Town of Discovery Bay Community Services District (TODB) used for the individualized self-certified supply conservation standard. The analysis was prepared to comply with the June 2016 State of California Emergency Drought Regulations and in accordance with the Guidance for Water Supply Reliability Certification and Data Submission.

Groundwater is the sole source of supply for the TODB water system. As such, the TODB Community Services District monitors well operations and groundwater conditions to ensure that sufficient supply is available to meet the requirements of its water supply permit. For the subject Water Supply Reliability Certification, this memorandum draws upon prior evaluations of supply including nature, extent, and continuity of the aquifer source, groundwater quality and storage as a function of historical use and hydrology, and overall conditions in the groundwater basin from which the groundwater source is derived.

Previous Investigations, Planning, and Monitoring

The Town of Discovery Bay along with other local water agencies funded a groundwater resources study of eastern Contra Costa County (Luhdorff & Scalmanini Consulting Engineers, 1999) to establish a basic understanding of groundwater resources in the region. The east Contra Costa County area was the subject of an AB3030 groundwater management plan (Diablo Water District, 2007) and the same local agencies cooperatively conduct monitoring under a California Groundwater Elevation Monitoring plan (2014). TODB prepared water master plans in 1999 and 2010 to ensure that infrastructure development matched growth in demand and prepared an Urban Water Management Plan in 2015.

Through each of these activities, local groundwater conditions have continually been evaluated for sufficiency in meeting demand and to determine whether the groundwater source was reliable and sustainable at the level of current and projected future use. Operationally, TODB conducts thorough well performance testing on a bi-annual basis to identify maintenance needs.

Geologic Setting and Groundwater Occurrence

Discovery Bay is located in eastern Contra Costa County in the northwestern San Joaquin River Valley portion of the Great Valley geomorphic province of California. The province is characterized by the low relief valley of the north-flowing San Joaquin River and the south-flowing Sacramento River, which merge in the Delta region just north of the community, draining westward to the Pacific Ocean.

To the west of Discovery Bay, the Coast Range province consists of low mountains of highly deformed Mesozoic and Cenozoic marine sedimentary rocks. These thick marine rocks extend eastward below the Great Valley where they are targets of deep well gas exploration.

Overlying the marine rocks is a sequence of late Cenozoic (Miocene, Pliocene, and Pleistocene) non-marine sedimentary deposits. Surface exposures of these deposits occur in small areas along the edge of the Coastal Range. The beds dip moderately to the east and extend below the San Joaquin Valley. In the subsurface, the nature of these deposits is poorly known, but they are believed to be dominated by fine-grained clays, silts, and mudstones with few sand beds. The lower portion of these deposits may be in part equivalent to the Miocene-Pliocene Mehrten Formation along the east side of the Great Valley. The upper portion of Pliocene and Pleistocene age may be equivalent to the Tulare Formation along the west side of the San Joaquin Valley to the south, and the Tehama Formation of the Sacramento Valley to the north. It is believed that these deposits extend from about 400 feet to 1,500-2,000 feet below the San Joaquin River. Water quality from electric logs is difficult to quantify, but groundwater appears to become brackish to saline with depth.

Late Cenozoic (Pleistocene and Holocene; 600,000 years to present) sedimentary deposits overlie the older geologic units. These deposits are largely unconsolidated beds of gravel, sand, silts, and clays. The deposits thicken eastward from a few tens of feet near the edge of the valley to about 400 feet at the Contra Costa County line. West of Discovery Bay, the deposits are characterized by thin sand and gravel bands occurring within brown, sandy silty clays and are believed to have formed on an alluvial fan plain fed from small streams off the Coastal Range to the west. The alluvial plain deposits interbed and interfinger with deposits of a fluvial plain to the east. The fluvial deposits consist of thicker, more laterally extensive sand and gravel beds of stream channel origin interbedded with flood plain deposits of gray to bluish, sandy to silty clays. Discovery Bay overlies the fluvial plain area of eastern Contra Costa County, and its supply is derived from wells completed in these deposits to a maximum depth of about 350 feet.

Hydrogeologic Setting

Discovery Bay overlies the northwestern portion of the Tracy Subbasin (see **Figure 1**), which is one of sixteen subbasins in the San Joaquin Valley Groundwater Basin as designated in Department of Water Resources Bulletin 118, 2003 Update. The Tracy Subbasin boundaries are defined by the Mokelumne and San Joaquin Rivers on the north; the San Joaquin River on the east; and the San Joaquin-Stanislaus County line on the south. The western subbasin boundary is defined by the contact between the unconsolidated sedimentary deposits and the rocks of the Diablo Range (DWR, 2004).

The hydrogeology of Discovery Bay is illustrated through the geologic cross section shown on **Figure 2**. The cross section depicts the distribution of aquifer materials completed in TODB's supply wells. The maximum depth of groundwater development is about 350 feet below ground surface. Sand units encountered below this depth are interpreted as the uppermost, older non-marine deposits of largely fine-grained silt and clay with thin, fine sand interbeds. Water quality appears to be poor to brackish in the older, deeper sediments. Water quality in the primary production aquifer is described in the next section under Groundwater Conditions.

Overlying the older non-marine deposits are Pleistocene alluvium of generally thick beds of sand and gravel with a thin clay interbed. These are interpreted as stream channel deposits of a northward flowing ancestral San Joaquin River and represent the primary production aquifer from which all TODB supply wells extract groundwater (see **Figure 2**).

The primary production aquifer is confined by a thick sequence of grayish to bluish silt and clay with thin interbeds of sand. This unit appears to represent deposition on a floodplain with the main stream channels further east. Thin sands within this sequence appear to be flood-sprays of sand spread onto the flood plain.

A second aquifer sequence above about 140 feet below ground surface consists of a thinner sand and gravel bed, and is encountered in wells throughout Discovery Bay (see **Figure 2**). These appear to be stream channel deposits, but water quality is brackish to saline. As a result, this zone must be sealed off to protect water quality of the primary production aquifer and to avoid corrosion of the well casing. Overlying the brackish zone is a sequence of gray to brown silt and clay beds with some thin sand beds. These beds appear to be either floodplain deposits or distal alluvial plain deposits from the west.

Groundwater Conditions

Groundwater conditions in Discovery Bay are closely monitored to ensure that TODB can meet the requirements of its public water system permit. Groundwater level data for Discovery Bay have been collected since the late 1980s when the town was developed. Monitoring has evolved to

include compliance with CASGEM and for developing a Groundwater Sustainability Plan (GSP) with other local agencies under the 2014 Groundwater Sustainability Act. Water level and water quality trends are discussed below as indicators of reliability and sustainability of the source.

Groundwater Levels

Early water well driller reports for wells in Discovery Bay indicate that before significant development occurred, static groundwater levels were near sea level. At this elevation, water levels in wells were about 10 feet below ground surface. With the onset of pumping and initial growth, the static level in production wells exhibited seasonal variations between 10 and 40 feet below ground surface. During this period, pumpage increased from about 300 million gallons per year (MGY) in 1987 to about 800 MGY by 2001. Between 2001 and 2008, pumpage increased to 1,300 MGY. After 2008, pumpage leveled off as a result of the national economic downturn and water levels since 2008 have exhibited stable to rising trends. Water level measurements in fall 2014 and 2015 were higher than the last year of the 2007-09 statewide drought. **Figure 3** is a hydrograph showing water level data for TODB's production wells and denotes dry periods and pumpage.

TODB also conducts continuous monitoring of key monitoring wells with the use of water level transducers equipped with dataloggers. Data from this effort are complementary to the seasonal manual measurements in the TODB production wells. An example of output is shown on **Figure 4** with data from a shallow and deep monitoring well at the Well 4 site. The deep monitoring well data reflect daily drawdown induced by the operation of Well 4. The shallow monitoring well is completed in the brackish zone above 140 feet and serves as a sentinel to ensure that pumping influences in the primary production aquifer do not induce downward vertical flow of brackish groundwater.

Groundwater Quality

Groundwater quality from TODB supply wells meets all California primary drinking water standards. Groundwater does not meet secondary standards for manganese, which exceeds the drinking water maximum contaminant limit (MCL) of 0.050 mg/L. As a result, manganese removal treatment is employed so that all Title 22 requirements for drinking water are satisfied. Because of the depth of the primary production aquifer (see **Figure 2**) and presence of confining clay layers, source protection is achieved with deep annular seals in the well structure. As a result, none of the wells have exhibited anthropogenic sources of contamination such as volatile or semi-volatile organic contaminants that are often found in urbanized settings.

The most important water quality concern for the well sources in Discovery Bay is the brackish to saline water that occurs in the shallow zone above 140 feet (see **Figure 2**). With the exception of one well that has a compromised seal, all TODB wells exhibit stable levels of

dissolved mineral content. The problem well serves as an emergency standby source and is anticipated to be replaced.

Groundwater Sustainability and SGMA

In the absence of chronic downward trends in water levels or degraded water quality, TODB's groundwater supply is considered sustainable and does not exhibit any characteristics of unsustainability as defined under the 2014 Sustainable Groundwater Management Act (SGMA). Furthermore, the historic trends through variable hydrologic periods, including the stability in groundwater levels through the recent drought in water years 2013-15, indicate that groundwater pumpage is sustainable at current usage by TODB. To ensure future sustainability, TODB is a participant with other local agencies in seeking to develop a Groundwater Sustainability Plan under SGMA.

Total Available Supply

TODB water supply comes from six (6) existing groundwater production wells. The pumping capacity of these wells ranges from 850 gallons per minute (gpm) to 1,800 gpm. Four of the wells pump at the higher 1,800-gpm capacity. In accordance with the California Waterworks Standards (Title 22), the source capacity of TODB wells are sized such that the maximum day demand of the system can be met with the largest well offline. Thus, there is a redundancy in meeting the maximum day demand, for example, if a well is offline for maintenance during the high demand period.

The total pumping capacity of all TODB wells combined is 9,500 gpm. With the largest well offline, the combined pumping capacity of the remaining wells is 7,700 gpm. In comparison, the current maximum day demand is estimated to be approximately 6,000 gpm. Through an analysis of the TODB water demands (2010 Water Master Plan), it is estimated that when the annual demand reaches 1,800 million gallons per year (MGY) the maximum day demand of the system will be approximately 7,700 gpm. While the TODB supply wells could pump much more than 1,800 MGY if continually operated, this annual production represents the size of the system at which the maximum day demand would be equal to 7,700 gpm, and thus the capacity of the existing well field.

The groundwater questions on Worksheet 1 of the Guidance for Water Supply Reliability Certification and Data Submission form are supported by the data discussed in this technical memorandum as follows:

Do you know the volume of water in the aquifer that is in your source(s) of groundwater?

Yes. The minimum volume of groundwater available to TODB corresponds to the maximum annual historical extraction. While a greater volume might exist, data indicating that no undesirable effects occurred at the maximum pumpage rate provides a conservative estimate of source volume representing a measure of sustainable yield.

How frequently are groundwater elevations monitored?

Key monitoring wells are equipped with transducers and dataloggers set at 15-minute frequency (see **Figure 4**). These wells are used to assess operations and are part of the CASGEM monitoring network for the groundwater subbasin that TODB overlies. Semi-annual monitoring of all production wells is performed at same time as CASGEM monitoring. Additional water level measurements are made at the time of well maintenance activities.

At what depth is/was your water table?

Water levels in TODB production wells indicate full recoveries after droughts in 2007-09 and 2012-14 and current water levels in Wells 1B, 2, and 4 are as high as anytime in the past 20 years (see **Figure 3**). MW4-Deep is used to represent conditions for the TODB well network. The profiles for all existing wells were evaluated for selection MW4 as the sentinel. The depth-to-water readings below were made when nearby production Well 4A was not running. The depth-to-water in feet in June 2013 and June 2016 for this well are as follows:

<i>June 20, 2013</i>	<i>June 20, 2016</i>
57.4	57.0

How many feet can you withdraw without substantially affecting your ability to pump water?

Well 4A is representative of the TODB supply well network. The historic low static level is 66 to 68 feet recorded in the fall of dry years 2008, 2009, and 2014 (see **Figure 3**). In fall of 2009, when the historic low static water level was measured, a pump performance test was performed in which the pumping level was 132 feet at the operating flow rate. The pump setting depth is 180 feet, providing a margin of 48 feet. For the same pump setting depth, the low static water level could decline an additional 40 feet without requiring lowering of the pump or adversely affecting daily extraction in high demand months. As part of this determination, the pump curve and well profile were examined.

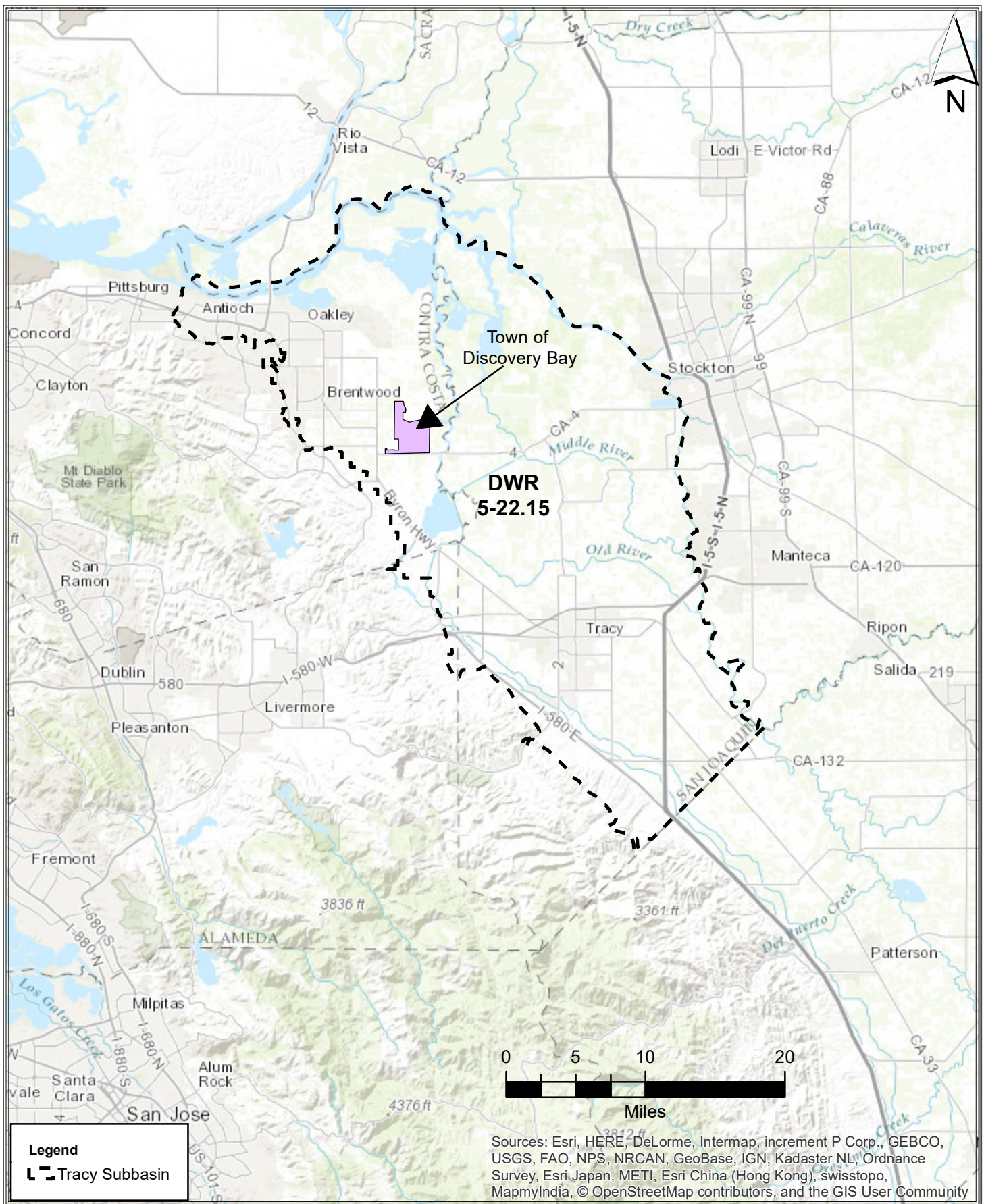
References

Diablo Water District. 2007. *Groundwater Management Plan for AB 3030*. Prepared by Luhdorff & Scalmanini, May.

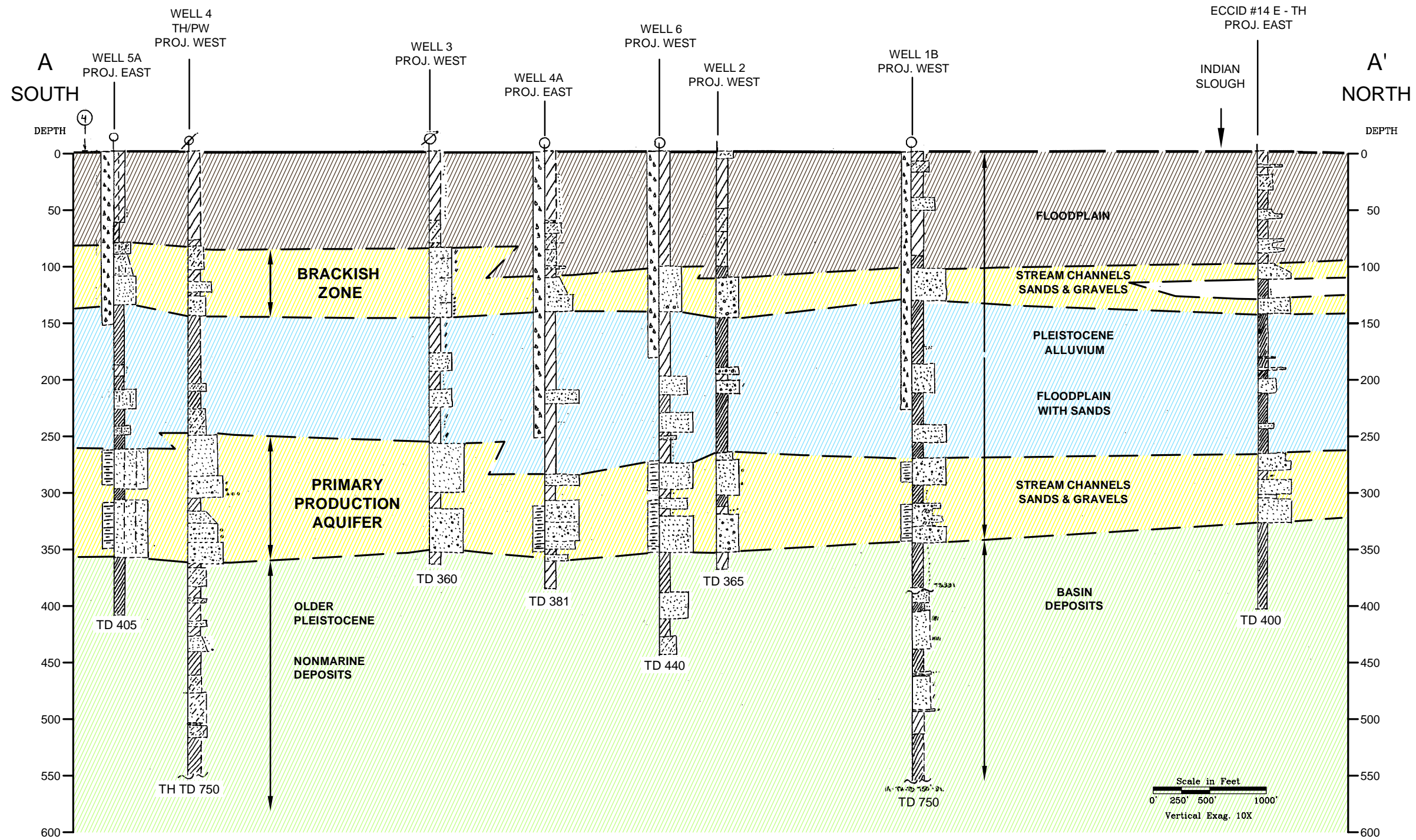
Luhdorff & Scalmanini Consulting Engineers. 1999. *Investigation of Groundwater Resources in the East Contra Costa Area*. Prepared for five water agencies in eastern Contra Costa County. March.

_____. 2014. *East Contra Costa County Groundwater Elevation Monitoring (CASGEM) Network Plan*. Prepared by Luhdorff & Scalmanini, July.

_____. 2014. *East Contra Costa County Groundwater Elevation Monitoring (CASGEM) Network Plan*. Joint plan for Town of Discovery Bay and five water agencies in eastern Contra Costa County. Prepared by Luhdorff & Scalmanini, July.



X:\2014 Job Files\14-126 East Contra Costa County GSP\GIS_EastCCC\Tracy Subbasin\Figure 1_TODB.mxd



LEGEND

